

गजिस्ट्री सं. डा- ८८



भारत का राजपत्र

The Gazette of India

प्राधिकार से प्रकाशित

PUBLISHED BY AUTHORITY

सं. ४]

मई दिल्ली, शनिवार, फरवरी २३, १९७४ (फाल्गुन ४, १८९५)

No. ४] NEW DELHI, SATURDAY, FEBRUARY 23, 1974 (PHALGUNA 4, 1895)

इस भाग में भिन्न पृष्ठ संख्या वी जाती है जिससे कि यह अलग संकलन के रूप में रखा जा सके।

Separate paging is given to this Part in order that it may be filed as a separate compilation.

नोटिस

(NOTICE)

नीचे लिखे भारत के असाधारण राजपत्र २८ फरवरी १९७३ तक प्रकाशित किये गये हैं —

The undermentioned Gazzettes of India Extraordinary were published up to the 28th February 1973 :—

अंक Issue	संख्या और तिथि No. and Date	द्वारा जारी किया गया Issued by	विषय Subject

—१०४—

—Nil—

ऊपर लिखे असाधारण राजपत्रों की प्रतियां, प्रकाशन नियन्त्रक, सिविल साइन्स, दिल्ली के नाम मांग-पत्र भेजने पर भेज दी जाएँगी। मांग-पत्र नियन्त्रक के पास इन राजपत्रों के जारी होने की लिये से दस दिन के सीनार पहुंच जाने चाहिए।

Copies of the Gazzettes Extraordinary mentioned above will be supplied on indent to the Controller of Publications, Civil Lines, Delhi. Indents should be submitted so as to reach the Controller within ten days of the date of issue of these Gazzettes.

विषय-सूची

भाग I—खंड 1—(रक्षा मंत्रालय को छोड़कर)	पृष्ठ	भाग II—खंड 3—उपखंड (ii)—(रक्षा मंत्रालय को छोड़कर)	पृष्ठ
भारत सरकार के मंत्रालयों और उच्चतम न्यायालय द्वारा जारी की गई विधितर नियमों, विनियमों तथा आदेशों और मंबल्पों से सम्बन्धित अधिसूचनाएँ	163	भारत सरकार के मंत्रालयों और (संघ-गज्य क्षेत्रों के प्रशासनों को छोड़कर) केन्द्रीय प्राधिकारी द्वारा विधि के अन्तर्गत बनाए और जारी किए गए आदेश और अधिसूचनाएँ	639
भाग I—खंड 2—(रक्षा मंत्रालय को छोड़कर)		भाग II—खंड 4—रक्षा मंत्रालय द्वारा अधिसूचित विधिक नियम आदेश	65
भारत सरकार के मंत्रालयों और उच्चतम न्यायालय द्वारा जारी की गई सरकारी अफसरों की नियुक्तियों, पदोन्नतियों, छुट्टियों आदि से सम्बन्धित अधिसूचनाएँ	319	भाग III—खंड 1—महालेखा परीक्षक, संघ लोक-सेवा आयोग, रेल प्रशासन, उच्च न्यायालयों और भारत सरकार के अधीन तथा संलग्न कार्यालयों द्वारा जारी की गई अधिसूचनाएँ	873
भाग I—खंड 3—रक्षा मंत्रालय द्वारा जारी की गई विधितर नियमों, विनियमों, आदेशों और संकल्पों से सम्बन्धित अधिसूचनाएँ	—	भाग III—खंड 2—एनस्ब वार्यालय, कलकत्ता द्वारा जारी की गई अधिसूचनाएँ और नोटिस	103
भाग I—खंड 4—रक्षा मंत्रालय द्वारा जारी की गई अफसरों की नियुक्तियों, पदोन्नतियों, छुट्टियों आदि से सम्बन्धित अधिसूचनाएँ	219	भाग III—खंड 3—मुख्य आयुक्तों द्वारा या उनके प्राधिकार से जारी की गई अधिसूचनाएँ	—
भाग II—खंड 1—अधिनियम, अध्यादेश और विनियम	—	भाग III—खंड 4—विधिक निकायों द्वारा जारी की गई विधिक अधिसूचनाएँ जिनमें अधिसूचनाएँ आदेश, विज्ञापन और नोटिस शामिल हैं	35
भाग II—खंड 2—विधेयक और विधेयकों संबंधी प्रबन्ध समितियों की रिपोर्ट	—	भाग IV—गैर सरकारी व्यक्तियों और गैर-सरकारी संस्थाओं के विज्ञापन तथा नोटिस पूरक संख्या 8—	37
भाग II—खंड 3—उपखंड (i)—(रक्षा मंत्रालय को छोड़कर) भारत सरकार के मंत्रालयों और (संघ-राज्य क्षेत्रों के प्रशासनों को छोड़कर) केन्द्रीय प्राधिकारी द्वारा जारी किए गए विधि के अन्तर्गत बनाए और जारी किए गए साधारण नियम (जिनमें साधारण प्रकार के आदेश, उप-नियम आदि सम्मिलित हैं)	403	16 फरवरी, 1974 को समाप्त होने वाले सप्ताह की महामारी संबंधी साप्ताहिक रिपोर्ट	1871
भाग II—खंड 3—उपखंड (ii)—(रक्षा मंत्रालय को छोड़कर) भारत सरकार के मंत्रालयों और (संघ-राज्य क्षेत्रों के प्रशासनों को छोड़कर) केन्द्रीय प्राधिकारी द्वारा जारी किए गए विधि के अन्तर्गत बनाए और जारी किए गए साधारण नियम (जिनमें साधारण प्रकार के आदेश, उप-नियम आदि सम्मिलित हैं)	—	26 जनवरी, 1974 को समाप्त होने वाले सप्ताह के दौरान भारत में 30,000 तथा उससे अधिक आबादी के शहरों में जन्म तथा घड़ी बीमारियों से हुई मृत्यु संबंधी आकड़े	1885
CONTENTS			
PART I—SECTION 1.—Notification relating to Non-Statutory Rules, Regulations, Orders and Resolutions issued by the Ministries of the Government of India (other than the Ministry of Defence) and by the Supreme Court	PAGE	PART II—SECTION 3.—Sub. SEC. (ii).—Statutory Orders and Notifications issued by the Ministries of the Government of India (other than the Ministry of Defence) and by the Central Authorities (other than the Administrations of Union Territories)	639
PART I—SECTION 2.—Notifications regarding Appointments, Promotions, Leave etc. of Government Officers issued by the Ministries of the Government of India (other than the Ministry of Defence) and by the Supreme Court	163	PART I—SECTION 4.—Statutory Rules and Orders notified by the Ministry of Defence	65
PART I—SECTION 3.—Notifications relating to Non-Statutory Rules, Regulations, Orders and Resolutions issued by the Ministry of Defence	319	PART III—SECTION 1.—Notifications issued by the Auditor General, Union Public Service Commission, Railway Administration, High Courts and the Attached and Subordinate Offices of the Government of India	873
PART I—SECTION 4.—Notifications regarding Appointments, Promotions, Leave etc. of Officers issued by the Ministry of Defence	219	PART III—SECTION 2.—Notifications and Notices issued by the Patent Offices, Calcutta	103
PART II—SECTION 1.—Acts, Ordinances and Regulations	—	PART III—SECTION 3.—Notifications issued by or under the authority of Chief Commissioners	—
PART II—SECTION 2.—Bills and Reports of Select Committees on Bills	—	PART III—SECTION 4.—Miscellaneous Notifications including Notifications, Orders, Advertisements and Notices issued by Statutory Bodies	35
PART II—SECTION 3.—Sub. SEC. (i).—General Statutory Rules (including orders bye-laws etc. of general character) issued by the Ministries of the Government of India (other than the Ministry of Defence) and by Central Authorities (Other than the Administrations of Union Territories	—	PART IV—Advertisements and Notices by Private Individuals and Private Bodies	3
		SUPPLEMENT No 8 Weekly Epidemiological Reports for week ending 16th February 1974	1871
		Births and Deaths from Principal diseases in towns with a population of 30,000 and over in India during week ending 26th January 1974	188

भाग I—खण्ड 1

PART I—SECTION 1

(रक्षा मंत्रालय को छोड़ कर) भारत सरकार के मंत्रालयों और उच्चतम न्यायालय द्वारा जारी की गई विधितर नियमों, विभिन्नों तथा आदेशों और संकल्पों से सम्बन्धित अधिसूचनाएं

[Notifications relating to Non-Statutory Rules, Regulations, Orders and Resolutions issued by the Ministries of the Government of India (other than the Ministry of Defence) and by the Supreme Court]

गृह मंत्रालय

नई दिल्ली-110001, दिनांक जनवरी, 1974
संकल्प

सं० ई० 13011/2/73-हिन्दी-2—गृह मंत्रालय के 9 अगस्त, 1972 के अब तक संशोधित संकल्प संख्या 8/6/71-हिन्दी-2 के अधीन पुनर्गठित हिन्दी सलाहकार समिति में भारत सरकार सर्वेश्वी श्रीरम्पद भिहा, नारायण गोवेश गोवेश और मरवार बूटा भिहा को सदस्य के रूप में नियुक्त करनी है। सर्वेश्वी गोविन्द नारायण और जगदीश चन्द्र माथुर के बदले गृह सचिव और भारत सरकार के हिन्दी सलाहकार की इस समिति के पदेन मदस्य नियुक्त करती हैं तथा श्री प्रेमनाथ श्रीर के बदले उप सचिव (हिन्दी), गृह मंत्रालय को पदेन समिति का सचिव नियुक्त करती है।

सर्वेश्वी आर० ई० भण्डारे, जे० वी० पट्टनायक और के० चन्द्रशेखरन इस समिति के मदस्य नहीं रहेंगे।

‘आदेश’

आदेश दिया जाता है कि इस संकल्प की एक प्रति सभी राज्य सरकारों, संघ नामित धोंदों के प्रशासनों, भारत सरकार के गभीर मंत्रालयों और विभागों, गणराज्य के गवर्नरालय, मन्त्रिमण्डल सचिवालय, प्रधान मंत्री के सचिवालय, योजना आयोग, नियंत्रक व महानोखा परीक्षक, केन्द्रीय राजस्व का महानोखाकार, लोक सभा सचिवालय और राज्य सभा सचिवालय को भेजी जाए।

यह भी आदेश दिया जाता है कि इस संकल्प को सर्वसाधारण के सूचनार्थ भारत के राजपत्र में प्रकाशित किया जाए।

प्रेम प्रकाश।
उप-सचिव

वित्त मंत्रालय
आर्थिक कार्य विभाग

नई दिल्ली, दिनांक 25 जनवरी 1974

सं० ए० ३ (२१)-ए० १०००/७३—राजपत्र ने डाक घर (सावधि जमा) नियमावली, 1970 का आंश आगे संशोधन करने के लिए एन्ड्रहारा निम्नलिखित नियम बनाये हैं, अर्थात् :

1. (1) इन नियमों को डाक घर (सावधि जमा) संशोधन नियमावली, 1974 कहा जाए।
- (2) ये नियम राजपत्र में प्रकाशित होने की तारीख में लागू होंगे।

2. डाकघर (सावधि जमा) नियमावली, 1970 (जिन्हे इसके बाद उक्त नियमावली कहा जाएगा) के नियम 5 के नीचे दी गई सारणी में :—

- (i) “एकल खाते” में मम्बद्ध मद (1) में—
(क) शब्द “एक” के स्थान पर—जहां कहीं भी ये शब्द कालम (3) में आएं—“एक या एक से अधिक खाते” शब्द रखे जाए;
- (ख) टिप्पणी में, शब्द “एक खाता” के स्थान पर “एक या एक से अधिक खाते” वाक्यांश रखा जाए;
- (ii) “संयुक्त खाते” में मम्बद्ध मद (2) में—
(क) कालम (3) में आने वाले शब्द “एक” के स्थान पर “एक या एक से अधिक खाते” वाक्यांश रखा जाए;
- (ख) टिप्पणी में, “खाता” और “एक एकल खाता” शब्दों के स्थान पर “खाता या खाते” शब्द रखे जाएं;

3. उक्त नियमावली का नियम 6 हटा दिया जाए।

ए० वी० श्रीनिवासन
अवर सचिव

स्वास्थ्य और परिवार नियोजन मंत्रालय
(परिवार नियोजन विभाग)

नई दिल्ली, दिनांक 20 जनवरी 1947

संकल्प

सं० ए०-43011/15/73-ए० पी०—इस विभाग के संकल्प संख्या ए० 43011/15/73-ए० पी० दिनांक 28/9/73 के अनुसरण में भारत सरकार ने निर्णय किया है कि अन्तर्राष्ट्रीय जनसंख्या अध्ययन संस्थान, बम्बई के कार्य की समीक्षा करने के लिए गठित की गई समीक्षा समिति अपनी रिपोर्ट 30 जून, 1974 तक प्रस्तुत कर दें।

ए० डॉल्पू० के० युसफजौह
निदेशन

रेल संवालय
(रेलवे बोर्ड)
नई दिल्ली, दिनांक 23 फरवरी 1974
नियम

सं० 73/ई० (जी० आर०) 1/15/7—निम्नलिखित सेवाओं/पदों में गिरत म्यानों को भरने के लिए, संघ लोक सेवा आयोग द्वारा 1974 में ली जाने वाली प्रतियोगिता परीक्षाओं के नियम सम्बन्धित संकालयों/विभागों की सहमति से, आम जानकारी के लिए प्रकाशित किये जाते हैं :—

क:—सिविल इंजीनियरी वर्ग—

सेवा/पद श्रेणी I

- (i) इंजीनियरों की भारतीय रेल सेवा;
- (ii) केन्द्रीय इंजीनियरी सेवा;
- (iii) भारतीय निरीक्षण सेवा; (इंजीनियरी शाखा) (सिविल इंजीनियरी पद);
- (iv) मैनिक इंजीनियरी सेवाएँ (इमारत और सड़क संरचना);
- (v) केन्द्रीय जल इंजीनियरी सेवा (सिविल इंजीनियरी पद);
- (vi) केन्द्रीय इंजीनियरी सेवा (सड़क);
- (vii) सहायक अधिकारी अभियन्ता (मिलिन) (डाक-तार सिविल इंजीनियरी स्कॉल्यूम)।

सेवा/पद श्रेणी II

- (viii) सहायक इंजीनियर (मिलिन) (डाक-तार सिविल इंजीनियरी स्कॉल्यूम);
- (ix) गष्ट्रीय भवन संगठन में सहायक निदेशक (प्रयोगात्मक आवास और अभिकल्प);
- (x) आकाशवाणी के मिलिन निर्माण स्कॉल्यूम में सहायक इंजीनियर (मिलिन)।

ख—पात्रिक इंजीनियरी वर्ग

सेवा/पद श्रेणी I

- (i) पात्रिक इंजीनियरों को भारतीय रेल सेवा;
- (ii) भारतीय निरीक्षण सेवा (इंजीनियरी शाखा) (पात्रिक इंजीनियरी पद);
- (iii) भारतीय पूर्ति सेवा (पात्रिक इंजीनियरी पद);
- (iv) केन्द्रीय जल इंजीनियरी सेवा (पात्रिक इंजीनियरी पद);
- (v) केन्द्रीय विजली शक्ति इंजीनियरी सेवा (पात्रिक इंजीनियरी पद);
- (vi) तकनीकी विकास महानिदेशालय में सहायक विकास अधिकारी (इंजीनियरी) (विजली);
- (vii) भारतीय आयुध कारखाना सेवा (इंजीनियरी शाखा) (विजली इंजीनियरी पद);
- (viii) रक्षा मन्त्रालय में उप आयुध पूर्ति अधिकारी, प्रैड-II;

(ix) भारतीय भूविज्ञान सर्वेक्षण में यांत्रिक इंजीनियर (कनिष्ठ);

(x) भारतीय भूविज्ञान सर्वेक्षण में सहायक ड्रिलिंग इंजीनियर;

(xi) सहायक प्रबन्धक (कारखाना) (डाक-तार, दूर संचार कारखाना संगठन);

(xii) सैनिक इंजीनियर मेवा (बिजली और यांत्रिक संरचना);

सेवा/पद श्रेणी-II:

(xiii) भारतीय भूविज्ञान सर्वेक्षण में सहायक यांत्रिक इंजीनियर, श्रेणी-II

ग: विजली इंजीनियरी वर्ग

सेवा/पद श्रेणी-I

- (i) विजली इंजीनियरों की भारतीय रेल सेवा;
- (ii) केन्द्रीय विजली इंजीनियरी सेवा;
- (iii) भारतीय निरीक्षण सेवा; (इंजीनियरी शाखा) (विजली इंजीनियरी पद);
- (iv) भारतीय पूर्ति सेवा (विजली इंजीनियरी पद);
- (v) भारतीय आयुध कारखाना सेवा; (इंजीनियरी शाखा) (विजली इंजीनियरी पद);
- (vi) केन्द्रीय शक्ति इंजीनियरी सेवा (विजली इंजीनियरी पद);
- (vii) तकनीकी विकास महानिदेशालय में सहायक विकास अधिकारी (इंजीनियरी) (विजली);
- (viii) सहायक अधिकारी अभियन्ता (विजली) (डाक-तार सिविल इंजीनियरी स्कॉल्यूम)।

सेवा/पद श्रेणी-II

- (ix) सहायक इंजीनियर (विजली) (डाक-तार सिविल इंजीनियरी स्कॉल्यूम);
- (x) आकाशवाणी के सिविल निर्माण स्कॉल्यूम में सहायक इंजीनियर (विजली)।

घ—सिगनल इंजीनियरी वर्ग

सेवा/पद श्रेणी-I

- (i) मिगनल इंजीनियरों की भारतीय रेल सेवा;
- (ii) भारतीय निरीक्षण सेवा (इंजीनियरी शाखा) (सिगनल इंजीनियरी पद);
- (iii) टेलीग्राफ इंजीनियरी सेवा;

सेवा/पद श्रेणी-II

- (iv) टेलीग्राफ यातायात सेवा।

2. अनुसूचित जातियों तथा अनुसूचित आदिम जातियों के अध्यर्थियों के मम्बन्ध में गिरियां का आरक्षण भारत सरकार द्वारा नियन्त की गई संख्या में किया जाएगा।

अनुसूचित जातियों/आदिम जातियों से अभिप्राय है कोई भी ऐसी जाति/आदिम जाति जिसका उल्लेख संविधान (अनुसूचित

जाति आदेश, 1950, संविधान (अनुसूचित जाति) (भाग 'ग' राज्य) आदेश, 1951 संविधान (अनुसूचित आदिम जाति) आदेश 1950 और अनुसूचित जाति और अनुसूचित आदिम जाति सूची (आणोधन) आदेश, 1956 द्वारा यथासंशोधित और बम्बई पुनर्गठन अधिनियम, 1960 और पंजाब पुनर्गठन अधिनियम, 1966 के साथ पठित, संविधान (अनुसूचित आदिम जाति) (भाग 'ग' राज्य) आदेश, 1951, संविधान (जम्मू और काश्मीर) अनुसूचित जाति आदेश, 1956, संविधान (अंडमान और तिकोंबार द्वीप) अनुसूचित आदिम जाति आदेश, 1959, संविधान (दादरा और नागर हवेली) अनुसूचित आदिम जाति आदेश, 1962, संविधान (दादरा और नागर हवेली) अनुसूचित आदिम जाति आदेश, 1962, संविधान (पांडिचेरी) अनुसूचित जाति आदेश, 1964, संविधान (अनुसूचित आदिम जाति) (उत्तर प्रदेश) आदेश, 1967, संविधान (गोआ, दमन, दीवा) प्रत्यनुसूचित जाति आदेश, 1968, संविधान (गोआ, दमन और दीवा) अनुसूचित आदिम जाति आदेश, 1968 और संविधान (तांगानींड) अनुसूचित आदिम जाति आदेश 1970 में किया गया है।

3. इन नियमों के प्रत्यनुसूचित परीक्षा आयोग द्वारा इन नियमों के परिणाम-J में निर्धारित रीति में नी जाएगी।

परीक्षास्थल तथा परीक्षा की तारीखें आयोग द्वारा नियत की जायेंगी।

4. अध्यर्थी के लिए आवश्यक होंगा कि वह या तो :—

- (क) भारत का नागरिक हो, या
- (ख) सिक्किम की प्रजा हो, या
- (ग) नेपाल की प्रजा हो, या
- (ङ) तिब्बती शरणार्थी हों, जो भारत में स्थायी रूप से वसने के इरादे से पहली जनवरी, 1962 से पहले भारत आया हो, या
- (च) ऐसा व्यक्ति हो जो मूलतः भारतीय हो और भारत में स्थायी रूप से वसने के इरादे से पाकिस्तान, बर्मा, श्रीलंका (जिसे पहले सौलोन कहा जाता था) और पूर्वी अफ्रीका के केन्या, उगान्डा तथा तंजानिया के संयुक्त गणराज्य (भूतपूर्व नांगानिया और जंजीवार) के देशों में प्रव्रजन करके भारत आया हो,

परन्तु उपर्युक्त कोटि (ग), (घ), (ङ) और (च) का अध्यर्थी वह व्यक्ति होगा जिसे भारत सरकार द्वारा पात्रता का प्रमाण-पत्र दिया गया हो।

जिस अध्यर्थी के मामले में पात्रता का प्रमाण-पत्र आवश्यक है, उसे परीक्षा में बैठने दिया जा सकता है और अनन्तिम रूप से उसकी नियुक्ति भी की जा सकती है, बश्यत कि सरकार उसे आवश्यक प्रमाण-पत्र दे।

5. (क) इस परीक्षा में बैठने के लिए अध्यर्थी के लिए आवश्यक है कि 1 अगस्त, 1971 को उसकी आयु 20 वर्ष हो चुकी हो लेकिन 25 वर्ष तक हुई हो अर्थात् वह 2 अगस्त, 1949 से पहले और 1 अगस्त, 1954 के बाद पैदा न हुआ हो।

(ख) यदि निम्नलिखित कोटियों के मरकारी कर्मचारी, इन सेवाओं के लिए आवेदन करते हैं और यदि वे नीचे कालम 1 में उल्लिखित किसी भी प्राधिकारी के नियंत्रणाधीन विभाग/कार्यालय में नियुक्त हैं और कालम 2 में उल्लिखित तदनुलूपी सेवा पद के लिए परीक्षा में प्रवेश हेतु आवेदन करते हैं, तो उनके मामले में 25 वर्ष की अधिकतम आयुसीमा की छूट देकर 30 वर्ष किया जा सकेगा।

- (i) वह अध्यर्थी, जो सम्बन्धित विभाग/कार्यालय विशेष में मूलरूप में किसी स्थायी पद पर हो। यह छूट किसी ऐसे परिवीक्षाधीन व्यक्ति को नहीं दी जाएगी जो अपने परिवीक्षाकाल में उस विभाग/कार्यालय में किसी स्थायी पद पर नियुक्त किया गया हो।
- (ii) वह अध्यर्थी जो 1 अगस्त, 1974 को किसी विभाग/कार्यालय विशेष में कम से कम 3 वर्ष से लगानार अस्थायी सेवा में रहा हो;
- (iii) भारतीय रेलों के भिविल, विजली, सिंगलन और यांत्रिक इंजीनियरी तथा परिवहन (इंजन शक्ति) विभागों में आयोग के माध्यम से भर्ती निया गया अस्थायी सहायक इंजीनियर भी इस विशेषत को पाने का पात्र होगा चाहे उस विभाग में उसकी सेवा अवधि कितनी भी हो।

कालम 1

रेल विभाग

कालम 2

ई० भा० रे० से०
वि० ई० भा० रे० से०
सि० ई० भा० रे० से०
यां० ई० भा० रे० से०
के० ई० से० श्रेणी-I
के० वि० ई० से० श्रेणी-I
भा० नि० गे० श्रेणी-I
भा० पू० से० श्रेणी-I
से० ई० से० श्रेणी-I
(ई० और स० संवर्ग)
से० ई० से० श्रेणी-I
(वि० और यां० संवर्ग)
भा० आ० का० से० श्रेणी-I
के० ज० ई० (श्रेणी I) सेवा
के० श० ई० (श्रेणी-I)
सेवा
सहायक विकास प्रधिकारी (इंजीनियरी) श्रेणी-I
भारतीय भू-विज्ञान सर्वेक्षण संस्था यांत्रिक इंजीनियर (कनिष्ठ) श्रेणी-I

महानिदेशालय, आयुध कारखाना

केन्द्रीय पानी और बिजली आयोग

महानिदेशालय, आयुध कारखाना

केन्द्रीय पानी और बिजली आयोग

महानिदेशालय, तकनीकी विकास

भारतीय भू-विज्ञान सर्वेक्षण संस्था

यांत्रिक इंजीनियर

(कनिष्ठ) श्रेणी-I

नोट :—यदि अप्रेटिसी काल के बाद ही ऐनों पर किसी चालू पद पर नियुक्ति हो जाये तो आयु सम्बन्धी रियायत के प्रयोजन के लिए अप्रेटिसी काल को रेल सेवा माना जा सकता है।

(ग) टेलीग्राफ इंजीनियरी सेवा, श्रेणी-I और टेलीग्राफ इंजीनियरी सेवा श्रेणी-2 के लिए निम्नलिखित अध्ययिताओं के सम्बन्ध में भी 25 वर्ष की अधिकतम आयु-सीमा की छूट देकर 30 वर्ष किया जा सकेगा :—

(i) यह अध्यर्थी जो डाक तार विभाग में मूल रूप से किसी स्थायी पद पर हो। यह छूट किसी ऐसे परिवीक्षाधीन व्यक्ति को स्वीकार्य नहीं होगी जो अपने परिवीक्षा काल में उस विभाग में किसी स्थायी पद पर नियुक्त किया गया है।

(ii) यह अध्यर्थी जो 1 अगस्त, 1974 को डाक-तार विभाग के अधीन निम्नलिखित अस्थायी पदों में से किसी एक पर लगातार कम से कम दो वर्ष रह चुका हो :—

1. रिपोर्टर स्टेशन सहायक;
2. टेलीग्राफ कारखानों के फोरमैन या तकनीकी सहायक;
3. कारखानों के अस्थायी सहायक इंजीनियर;
4. इंजीनियरी पर्यवेक्षक;
5. कारखाना पर्यवेक्षक।

(घ) ऊपर निर्धारित अधिकतम आयु-सीमा में निम्नलिखित रूप से और छूट दी जा सकती :—

(i) यदि अध्यर्थी अनुसूचित जाति या अनुसूचित आदिम जाति का हो तो अधिक से अधिक पांच वर्ष तक;

(ii) यदि अध्यर्थी भूतपूर्व पूर्वी पाकिस्तान से आया हुआ सदाशयी विस्थापित व्यक्ति हो और 1 जनवरी, 1964 को या उसके बाद लेकिन 25 मार्च, 1971 से पहले प्रव्रजन करके भारत आया हो तो अधिक से अधिक तीन वर्ष तक। लेकिन यह रियायत किसी ऐसे अध्यर्थी के लिए स्वीकार्य नहीं होगी जो ऐसी पिछली पांच परीक्षाओं में बैठ चुका हो;

(iii) यदि अध्यर्थी अनुसूचित जाति या अनुसूचित आदिम जाति का हो और साथ ही भूतपूर्व पूर्वी पाकिस्तान से आया हुआ सदाशयी विस्थापित व्यक्ति हो और 1 जनवरी, 1964 को या उसके बाद लेकिन 25 मार्च, 1971 से पहले प्रव्रजन करके भारत आया हो तो अधिक से अधिक आठ वर्ष तक। लेकिन यह रियायत किसी ऐसे अध्यर्थी के लिए स्वीकार्य नहीं होगी जो ऐसी पिछली दस परीक्षाओं में बैठ चुका हो;

(iv) यदि अध्यर्थी पांडिचेरी के संघशासित क्षेत्र का निवासी हो और उसने किसी समय फैंच भाषा के माध्यम में शिक्षा पायी हो, तो अधिक से अधिक तीन वर्ष तक;

(v) यदि अध्यर्थी भारतीय मूल का, श्रीलंका (जिसे पहले सीलोन कहा जाता था) से आया हुआ सदाशयी प्रत्यावर्ती हो और अक्टूबर, 1964 के भारत-श्रीलंका करार के अधीन 1 नवम्बर, 1964 को या इसके बाद प्रव्रजन करके भारत आया हो, तो अधिक से अधिक तीन वर्ष। लेकिन यह रियायत किसी ऐसे अध्यर्थी को स्वीकार्य नहीं होगी जो ऐसी पिछली दस परीक्षाओं में बैठ चुका हो;

(vi) यदि अध्यर्थी अनुसूचित जाति या अनुसूचित आदिम जाति का हो और साथ ही भारतीय मूल का, श्रीलंका (जिसे पहले सीलोन कहा जाता था) से आया हुआ सदाशयी प्रत्यावर्ती हो तथा अक्टूबर, 1964 के भारत-श्रीलंका करार के अधीन 1 नवम्बर, 1964 को या इसके बाद प्रव्रजन करके भारत आया हो, तो अधिक से अधिक आठ वर्ष तक। लेकिन यह रियायत किसी ऐसे अध्यर्थी को स्वीकार्य नहीं होगी जो ऐसी पिछली दस परीक्षाओं में बैठ चुका हो;

(vii) यदि अध्यर्थी भारतीय मूल का हो और केन्या, उगान्डा और तंजानिया के संयुक्त गणराज्य (भूतपूर्व तांगानिका और जंजीबार) से प्रव्रजन करके भारत आया हो, तो अधिक से अधिक तीन वर्ष तक ;

(viii) यदि अध्यर्थी भारतीय मूल का वर्मा से आया हुआ सदाशयी प्रत्यावर्ती हो और 1 जून, 1963 को या इसके बाद प्रव्रजन करके भारत आया हो, तो अधिक से अधिक तीन वर्ष तक। लेकिन यह रियायत किसी ऐसे अध्यर्थी को स्वीकार्य नहीं होगी जो ऐसी पिछली दस परीक्षाओं में बैठ चुका हो ;

(ix) यदि अध्यर्थी अनुसूचित जाति या अनुसूचित आदिम जाति का हो और साथ ही भारतीय मूल का वर्मा से आया हुआ सदाशयी प्रत्यावर्ती हो तथा 1 जून, 1963 को या इसके बाद प्रव्रजन करके भारत आया हो तो अधिक से अधिक आठ वर्ष तक। लेकिन यह रियायत किसी ऐसे अध्यर्थी को स्वीकार्य नहीं होगी जो ऐसी पिछली दस परीक्षाओं में बैठ चुका हो ;

(x) यदि प्रन्थ देश के साथ युद्ध के दौरान या उपद्रव-ग्रस्त क्षेत्र में अपाहिज हो जाने के फलस्वरूप मुक्त हुए सैनिक कर्मचारियों के मामले में अधिक

में अधिक तीन वर्ष तक। लेकिन यह रियायत किसी ऐसे अभ्यर्थी को स्वीकार्य नहीं होगी जो ऐसी पिछली पांच परीक्षाओं में बैठ चुका हो;

- (xi) किसी अन्य देश के साथ युद्ध के दौरान या उपद्रवग्रन्थ क्षेत्र में अपाहिज हो जाने के फल-स्वरूप मुक्त हुए अनुसूचित जाति या अनुसूचित आदिम जाति के सैनिक कर्मचारियों के मामले में अधिक से अधिक आठ वर्ष तक। लेकिन यह रियायत किसी ऐसे अभ्यर्थी को स्वीकार्य नहीं होगी जो ऐसी पिछली दम परीक्षाओं में बैठ चुका हो।
- (xii) यदि अभ्यर्थी गोवा, दमन और दीव के संघ शामित क्षेत्र का निवासी हो तो अधिक से अधिक तीन वर्ष तक;
- (xiii) 1971 के भारत-पाक युद्ध के दौरान अपाहिज हो जाने के परिणाम स्वरूप मुक्त हुए सीमा सुरक्षा दल के सैनिक कर्मचारियों के मामले में अधिक से अधिक तीन वर्ष तक।
- (xiv) 1971 के भारत-पाक युद्ध के दौरान अपाहिज हो जाने के परिणाम स्वरूप मुक्त हुए सीमा सुरक्षा दल के अनुसूचित जाति या अनुसूचित जन जाति सैनिक कर्मचारियों के मामले में अधिक से अधिक आठ वर्ष तक।

ध्यान दीजिए : (i) यदि अभ्यर्थी किसी एक या अधिक सेवाओं/पदों के लिए परीक्षा में बैठता है, तो इस नियम के प्रयोजनों के लिए ऐसा भवित्व जाएगा कि वह साधारणतः ऐसी परीक्षा के अन्तर्गत प्राप्त वाली सभी सेवाओं/पदों के लिए एक बार परीक्षा में बैठ चुका है।

यदि अभ्यर्थी किसी एक या अधिक विषयों में वस्तुतः परीक्षा देता है तो उसके बारे में वह समझा जायेगा कि वह परीक्षा में बैठ चुका है।

- (ii) उपर्युक्त नियम 5 (ख) या 5 (ग) में उल्लिखित आयु सम्बन्धी रियायत के अन्तर्गत परीक्षा में प्रवेश पाने वाला व्यक्ति, यदि अपना आवेदन-पत्र देने के बाद परीक्षा देने से पहले या बाद में नौकरी से स्तूपिका दे देता है या उसके विभाग/कार्यालय द्वारा उसकी सेवाएं समाप्त कर दी जाती हैं, तो ऐसे व्यक्ति की अभ्यर्थना समाप्त की जा सकती है। लेकिन यदि आवेदन-पत्र देने के बाद उस व्यक्ति की सेवा या पद से छुटकी कर दी जाती है तो वह परीक्षा में बैठने का पात्र बना रहेगा।

यदि कोई अभ्यर्थी, अपने विभाग को आवेदन-पत्र देने के बाद, अन्य विभाग/कार्यालय को स्थानान्तरित कर दिया जाता है, तो वह

आयु सम्बन्धी विभागीय रियायतों के अन्तर्गत उस सेवा के लिए प्रतियोगिता में भाग लेने का पात्र होगा जिसके लिए वह स्थानान्तरण न होने की विधि में पात्र होता, लेकिन शर्त यह है कि उसका आवेदन-पत्र उसके मूल विभाग द्वारा अंग्रेजित किया गया हो।

उपर्युक्त उपबन्धों के अन्तिमिति किमी भी हालत में निर्धारित आयु सीमाओं में छूट नहीं दी जायेगी।

6. अभ्यर्थी के लिए आवश्यक है कि :—

- (क) उसने केन्द्रीय या राज्य विधान सभा के किसी अधिनियम द्वारा भारत में निर्गमित विश्वविद्यालय या संसद् के किसी अधिनियम द्वारा स्थापित या विश्वविद्यालय अनुदान आयोग अधिनियम, 1956 की धारा 3 के अन्तर्गत विश्वविद्यालयों के रूप में मान्य घोषित किसी अन्य शिक्षा संस्था में हंजीनियरी की उपाधि प्राप्त की हो, अथवा
- (ख) उसने ऐसे विदेशी विश्वविद्यालयों, कालेजों/संस्थाओं से 'ए' और 'बी' खण्डों को पास किया हो; अथवा
- (ग) उसने ऐसे विदेशी विश्वविद्यालयों, कालेजों/संस्थाओं से श्री और ऐसी शर्तों के अधीन हंजीनियरी की उपाधि/डिप्लोमा प्राप्त किया हो जिन्हें उसके प्रयोजनार्थ समय-समय पर सरकार से मान्यता मिली हो।

परन्तु विजली हंजीनियरों की भारतीय रेल सेवा, सिंगल हंजीयनथरों की भारतीय रेल सेवा, यांत्रिक हंजीनियरों की भारतीय रेल सेवा, टेलीग्राफ हंजीनियरी सेवा, श्रेणी-1, टेलीग्राफ यातायात सेवा, श्रेणी-2, केन्द्रीय विजली हंजीनियरी सेवाएं, श्रेणी-1, केन्द्रीय जल हंजीनियरी (श्रेणी-1) सेवा (यांत्रिक हंजीनियरी पद) और केन्द्रीय शक्ति हंजीनियरी (श्रेणी-1) सेवा के अभ्यर्थी उपर्युक्त अथवा निम्नलिखित ग्रहेताओं में से कोई एक अहंता प्राप्त व्यक्ति हो सकता है, अर्थात् :—

- (क) उसने इलैक्ट्रॉनिक्स और दूर-संचार हंजीनियरों की संस्था (भारत) की स्नातक सदस्यता परीक्षा पास की हो;
- (ख) उसने नवम्बर, 1959 के बाद ली गयी, इलैक्ट्रॉनिक्स और रेडियो हंजीनियरों की संस्था, लन्दन से स्नातक परीक्षा पास की हो।

इलैक्ट्रॉनिक्स और रेडियो हंजीनियरों की संस्था, लन्दन, की नवम्बर, 1959 से पहले ली गई स्नातक सदस्यता परीक्षा भी मान्य होगी, वर्गते कि :—

- (1) नवम्बर, 1959 से पहले ली गई परीक्षा पास करने वाले अभ्यर्थियों ने नवम्बर, 1959 के बाद की स्नातक सदस्यता परीक्षा स्कीम के अनुसार निम्नलिखित अन्तिमिति विषयों में परीक्षा दी और पास की हो :—
- (i) रेडियो और इलैक्ट्रॉनिक्स के सिद्धान्त 1 खण्ड 'ए'
- (ii) गणित II (खण्ड 'बी')।

(2) सम्बन्धित अभ्यर्थी उपर्युक्त (I) में निर्धारित शर्तें पूरी करना है, इसके प्रयाण-स्वरूप वह, इलैक्ट्रॉनिक्स और रेडियो इंजोनियरी की मंस्था, लन्डन का प्रमाण-पत्र प्रस्तुत करे।

नोट :—कोई ऐसा अभ्यर्थी जो तिसी ऐसी परीक्षा में बैठने का है जिसे पास करने से वह इस परीक्षा में बैठने का पात्र बनता है, लेकिन जिसके परीक्षा परिणाम की सूचना उसे नहीं मिली है, इस परीक्षा में प्रवेश के लिए आवेदन पत्र दे सकता है। यदि कोई अभ्यर्थी किसी ऐसी अर्हक परीक्षा (वास्तविक प्रशिक्षण परियोजना कार्य आदि को मिलाकर) में बैठना चाहता है तो वह भी आवेदन-पत्र दे सकता है, लेकिन शर्त यह है कि अर्हक परीक्षा इस परीक्षा के प्रारम्भ होने से पहले समाप्त हो जाये। ऐसे अभ्यर्थी को, यदि वह अन्यथा पात्र हो तो, परीक्षा में प्रवेश मिल जायेगा, लेकिन उसके प्रवेश को अनन्तिम समझा जाएगा और यदि वह उस परीक्षा (वास्तविक प्रशिक्षण; परियोजना कार्य आदि को मिलाकर) पास करने का प्रमाण यथासम्भव शीघ्र और किसी भी हालत में इस परीक्षा के प्रारम्भ होने से दो महीने के भीतर नहीं पेश करता, तो उसके प्रवेश को रद्द कर दिया जायेगा।

नोट 2 :—आपवादिक मामलों में, आयोग किसी ऐसे अभ्यर्थी को, जिसके पास इस नियम में निर्धारित कोई अर्हता न हो, शिक्षा की दृष्टि से अर्ह समझा जा सकता है, वर्षते उसने अन्य मंस्थाओं द्वारा भी जाने वाली ऐसी परीक्षाएँ पास की हों जिनका स्तर आयोग की गय में परीक्षा में उसके प्रवेश को औचित्य प्रदान करने वाला हो।

नोट 3 :—वह अभ्यर्थी भी जो अन्यथा अर्ह हो, लेकिन जिसने किसी ऐसे विदेशी विश्वविद्यालय से उपाधि प्राप्त की हो जो सरकार द्वारा मान्य न हो, आयोग को आवेदन पत्र भेज सकता है और आयोग के विवेक पर उसे परीक्षा में प्रवेश दिया जा सकता है।

7. अभ्यर्थी के लिए आवश्यक होगा कि वह आयोग की सूचना के अनुबन्ध-1 में विविरित कीस दे।

8. सरकारी सेवा में स्थायी या अस्थायी या नैमित्तिक कर्मचारी या दैनिक मजरी पाने वाले कर्मचारियों से भिन्न निर्माण-प्रभृति कर्मचारी की हैमियत में काम करने वाले के लिए आवश्यक होगा कि वह परीक्षा में बैठने के लिए अपने विभागाध्यक्ष या कार्यालय विशेष से पूर्णानुमति प्राप्त करे।

9. परीक्षा में प्रवेश के लिए कोई अभ्यर्थी पात्र है या नहीं, इस सम्बन्ध में आयोग का निर्णय अन्तिम होगा।

10. जब तक किसी अभ्यर्थी के पास आयोग से प्राप्त प्रवेश-पत्र नहीं होगा, तब तक उसे परीक्षा में नहीं बैठने दिया जायेगा।

11. अपनी अभ्यर्थीता के लिए किसी अभ्यर्थी द्वारा किसी भी साधन से किया गया कोई प्रयास उसे प्रवेश के लिए अर्नह बना सकता है।

12. यदि आयोग द्वारा कोई अभ्यर्थी प्रतिस्पृष्ट करते, या जाली दस्तावेज पेश करते, या दस्तावेजों में काट-छाट करते, या गलत या झूटे वायान देने, या महत्वपूर्ण सूचना द्वारा लेने, या परीक्षा में प्रवेश पाने के लिए अन्य अनियमित अथवा अनुचित साधनों का सहारा लेने, या परीक्षा भवन में गहित गाधनों का प्रयोग करते या उनके प्रयोग की चेष्टा करते, या परीक्षा भवन में दुर्व्यवहार करने का दोषी हो या आयोग द्वारा घोषित, किया गया हो, तो उसके विरुद्ध अदालती कार्यवाही करने के अलावा उसे निम्नलिखित मजा दी जा सकती है:—

(क) उसे स्थायी रूप से या विशिष्ट अवधि के लिए—

(1) आयोग द्वारा अभ्यर्थियों का चयन करने के लिए आयोग की परीक्षा में प्रवेश या साक्षात्कार में उपस्थित होने से;

(2) सरकार द्वारा अपने अधीन नियोजन से, वारित किया जा सकता है।

(ख) यदि वह पहले से ही सरकारी सेवा में हो, तो उपर्युक्त नियमों के अन्तर्गत उसके विरुद्ध अनुशासन की कार्रवाई की जा सकती है।

13. जो अभ्यर्थी लिखित परीक्षा में, उतने न्यूनतम अर्हक अंक प्राप्त कर लेते हैं, जिनमें आयोग स्वविवेक से निर्धारित करे, उन्हें आयोग व्यक्तित्व परीक्षा हेतु साक्षात्कार के लिए बुलाया।

14. परीक्षा के बाद आयोग हर अभ्यर्थी को अतिम रूप से दिये गये कुल अंकों के अनुसार योग्यता के आधार पर अभ्यर्थियों की एक सूची बनायेगा और उसी अंक से उन अभ्यर्थियों को, जिन्हें आयोग परीक्षा में अर्ह समझे छन्नी अनाग्रहित रिक्तियों पर नियुक्त के लिए सिफारिश की जायेगी जिन्हीं परीक्षा के परिणाम के आधार पर भरने का निर्णय किया गया हो।

परन्तु यदि अनुसूचित जाति और अनुसूचित आदिम जातियों के लिए आरक्षित रिक्तियाँ सामान्य स्तर के आधार पर भरने से रह जाएं तो उन्हें भरने के लिए आयोग द्वारा, स्तर में छूट देकर अनुसूचित जातियों और अनुसूचित आदिम जातियों के अभ्यर्थियों की सिफारिश की जा सकेगी वर्षते कि वे अभ्यर्थी सेवाओं/पदों में नियुक्त किये जाने के पात्र हों, भले ही परीक्षा में योग्यता-अंक से उनका स्थान कहीं भी हो।

15. प्रत्येक अभ्यर्थी को परीक्षा-परिणाम किस रूप में और किस ढंग से भेजा जाए, इस बात का निर्णय आयोग स्वविवेक में करेगा और परिणाम के सम्बन्ध में आयोग अभ्यर्थियों से कोई पत्र-व्यवहार नहीं करेगा।

16. आवेदन करने समय अभ्यर्थी जिन-जिन सेवाओं/पदों के लिए तरजीह देने हैं उनका यथोचित ध्यान परीक्षा के परिणामों के आधार पर नियुक्तियाँ करने समय रखा जायेगा।

मिशन इंजीनियरी, यौविक इंजीनियरी, विज्ञान इंजीनियरी और सिग्नल इंजीनियरी (नियमों का नियम 1 देखें) सेवाओं/पदों की कोटि अथवा कोटियों के अन्तर्गत अन्ते वाले पदों/सेवाओं जिनके लिए वह प्रतियोगी है, अभ्यर्थी द्वारा व्यक्त की गई अधिमान्यता वो बदलने के अनुरोध पर तब तक विचार नहीं किया जायेगा जब तक

कि परिवर्तन करने का अनुरोध, संघ लोक सेवा आयोग के कार्यालय में, परीक्षा के अंतिम परिणाम की तारीख घोषित होने के 14 दिन के अंदर प्राप्त न हो जाये।

17. परीक्षा में सफल होने से तब तक नियमित का अधिकार नहीं मिल जाता जब तक कि सरकार आवश्यक जाँच पड़ताल के बाद इस बात से सन्तुष्ट न हो जाये कि अध्यर्थी सरकारी सेवा में नियक्त के लिए सर्वथा उपयुक्त है।

18. अभ्यर्थी के लिए आवश्यक है कि वह मानसिक और शारीरिक वृद्धि से पूर्णतया स्वस्थ हो और उसमें कोई ऐसा शारीरिक दोष न हो जिसके कारण सेवा में अधिकारी के नाते उसके कर्तव्य पालन में बाधा पड़ने की सम्भावना हो। जो अभ्यर्थी (ऐसी शारीरिक परीक्षा के बाद जैसी कि सरकार या नियुक्ति करने वाला प्राधिकारी, जैसी स्थिति हो, विनिर्दिष्ट करें) इन आवश्यक बातों को पूरा नहीं करता, उसे नियुक्त नहीं किया जायेगा। व्यक्तित्व परीक्षा के लिए अहं घोषित किये गये सभी अभ्यर्थियों को चिकित्सा-मंडल की 16 रुपये फीस देनी होगी। किसी अभ्यर्थी को शारीरिक परीक्षा लेने का अर्थ यह नहीं होगा कि उक्त अभ्यर्थी नियुक्ति के लिए विचारणीय है।

अध्यर्थियों को किसी प्रकार की निराशा न हो, इसके लिए उन्हें सलाह दी जाती है कि परीक्षा में प्रवेश के लिए आवेदन करने से पहले वे सिविल सर्जन के स्तर के किसी सरकारी निकितसा अधिकारी से अपनी परीक्षा करा लें। नियुक्ति से पहले अध्यर्थियों की किस प्रकार की डाक्टरी परीक्षा होगी और उसमें उनसे किस स्तर की अपेक्षा की जायेगी इसका व्यौरा परिशिष्ट II में दिया गया है। अपाहिज भूतपूर्व सैनिक कर्मचारियों के सम्बन्ध में, प्रत्येक सेवा की आवश्यकताओं को ध्यान में रखते हए, इन स्तरों में छठ दी जायेगी।

1.9 कोई भी व्यक्ति

(क) जिसने ऐसे व्यक्ति से विवाह किया हो अथवा विवाह करने की संविदा की हो, जिसकी एक पत्नी/जिसका एक पति जीवित हो अथवा

(ख) जिसने एक पत्नी/पति के रहते हुए किसी व्यक्ति से विवाह किया हो अथवा विवाह करने की संविदा की हो, सेवा में नियमित के लिए पात्र नन्हीं होगा।

MINISTRY OF HOME AFFAIRS

New Delhi-110001, the 1st February 1974

RESOLUTION

No. E.13011/2/73-Hindi-2.—The Government of India appoints S/Shri Virbhadra Singh, Narayan Ganesh Goray and Sardar Buta Singh, Member of Parliament as Members of Hindi Sahakar Samiti reconstituted under the Ministry of Home Affairs Resolution No. 8/6/71-Hindi-2 dated the 9th August, 1972 as amended from time to time. The Home Secretary and the Hindi Adviser to the Government of India are appointed as *Ex -officio* Members of this

परन्तु यदि केन्द्रीय सरकार हम वात में मन्तुष्ट हो कि ऐसे व्यक्ति तथा विवाह के दूसरे पक्ष पर लागू होने वाली स्वीय विधि के अन्तर्गत इस प्रकार का विवाह अनुमेय है, और ऐसा करने के अन्य कारण हैं, तो वह किसी व्यक्ति को इस नियम के प्रवर्तन से छुट दे सकती है।

20. जिन सेवाओं/पदों के लिए इस परीक्षा के माध्यम से भर्ती की जा रही है, उसका संक्षिप्त विवरण परिशिष्ट-III में दिया गया है।

ए० ए० गुता,
मन्त्रिव, रेलवे बोर्ड

सिंचाई और विद्युत मंत्रालय

नई दिल्ली, विजांक 29 दिसम्बर 1973

संक्षिप्त

सं० विं-दो-१ (३)/७२—इस मंवालय के संकल्प संख्या विं-दो-१ (३)/७२, दिनांक २८ नवम्बर, १९७२, १३ फरवरी, १९७३, १० अगस्त, १९७३ और २४ सितम्बर, १९७३ द्वारा संशोधित संकल्प संख्या विं-दो-१ (३)/७२, दिनांक २० सितम्बर, १९७२ का आंशिक रूप से संशोधन करने हुए यह निर्णय किया गया है कि इस संकल्प द्वारा स्थापित ममिनि श्रब श्री बाल गोविन्द वर्मा के स्थान पर, जिन्होंने सिचाई और विद्युत् उपमंत्री के कार्यभार को छोड़ दिया है, प्रो० सिद्धेश्वर प्रसाद, सिचाई और विद्युत् उपमंत्री की अध्यक्षता में कार्य करेगी।

आखेशा

आदेश दिया जाता है कि इस मंकल्प की प्रणियां मध्मी राज्य सरकारों, संघ राज्य क्षेत्रों और राज्य विजली बोर्डों को व्यापक प्रचार हेतु भेज दी जाएँ।

यह भी आदेश दिया जाता है कि इस संकल्प को भारत के राजपत्र में प्रकाशित कर दिया जाए।

श्री ना० विष्णु,
संस्कृत सचिव

Samiti in place of S/Shri Govind Narain and Jagdish Chandra Mathur and Deputy Secretary (Hindi), Ministry of Home Affairs is appointed as *Ex-officio* Secretary of this Samiti in place of Shri Prem Nath Phir.

S/Shri R. D. Bhandarkar, J. B. Patnaik and K. Chandrashekharan will cease to be the Members of this Samiti.

ORDER

ORDERED that a copy of this Resolution may be communicated to all the State Governments, Administrations of Union Territories, all the Ministries and Departments of the Government of India, President

Secretariat, Cabinet Secretariat, Prime Minister Secretariat, Planning Commission, Comptroller and Auditor General, Accountant General, Central Revenues, the Lok Sabha Secretariat and the Rajya Sabha Secretariat.

ORDERED also that the Resolution may be published in the Gazette of India for general information.

PREM PRAKASH, Dy. Secy.

**MINISTRY OF FINANCE
(DEPARTMENT OF ECONOMIC AFFAIRS)**

New Delhi, the 25th January 1974

No. F.3(21)-NS/73.—The President hereby makes the following rules further to amend the Post Office (Time Deposits) Rules, 1970, namely :—

1. (1) These rules may called the Post Office (Time Deposits) Amendment Rules, 1974.
(2) They shall come into force on the date of their publication in the Official Gazette.
2. In the Table below rule 5 of the Post Office (Time Deposits) Rules, 1970 (hereinafter referred to as the said rules)—
 - (i) in item (1) relating to "Single Account"—
 - (a) for the word "One", wherever it occurs in column (3), the words "One or more accounts" shall be substituted.
 - (b) in the NOTE, for the words "an account", the words "one or more accounts" shall be substituted;
 - (ii) in item (2) relating to "Joint Account"—
 - (a) for the word "One" occurring in column (3), the words "One or more accounts" shall be substituted;
 - (b) in the NOTE, for the words "the account" and "a single account", the words the account or accounts" shall be substituted.
3. Rule 6 of the said rules shall be omitted.

A. V. SRINIVASAN, Under Secy.

**MINISTRY OF HEALTH & FAMILY PLANNING
(DEPARTMENT OF FAMILY PLANNING)**

New Delhi, the 29th January 1974

RESOLUTION

No. A43011/15/73-AP.—In continuation of this Department's Resolution No. A 43011/15/73-AP dated 28-9-73, the Government of India have decided that the Review Committee set up to review the work of the International Institute for Population Studies, Bombay, may present their report by the 30th June, 1974.

ORDER

ORDERED that the Resolution be published in the Gazette of India for general information.

M. W. K. YUSUFZAL, Dir.

MINISTRY OF RAILWAYS

(Railway Board)

RULES

New Delhi, the 23rd February 1974

No. 73E(GR)I/15/7.—The rules for a competitive examination to be held by the Union Public Service Commission in 1974, for the purpose of filling vacancies in the following services/posts are with the concurrence of the Ministries/Departments concerned, published for general information.

A. CIVIL ENGINEERING GROUP OF SERVICES—

Class I Services/Posts

- (i) Indian Railway Service of Engineers;
- (ii) Central Engineering Service;
- (iii) Indian Inspection Service; (Engineering Branch) (Civil Engineering Posts);
- (iv) Military Engineer Services (Buildings and Roads Cadre);
- (v) Central Water Engineering Service (Civil Engineering Posts);
- (vi) Central Engineering Service (Roads);
- (vii) Assistant Executive Engineer (Civil) (P&T Civil Engineering Wing).

Class II Services/Posts

- (viii) Assistant Engineer (Civil) (P&T Civil Engineering Wing);
- (ix) Assistant Director (Experimental Housing and Designs) in the National Buildings Organisation.
- (x) Assistant Engineer (Civil) in the Civil Construction Wing of All India Radio.

B. MECHANICAL ENGINEERING GROUP OF SERVICES

Class I Services/Posts

- (i) Indian Railway Service of Mechanical Engineers;
- (ii) Indian Inspection Service (Engineering Branch) (Mechanical Engineering Posts);
- (iii) Indian Supply Service (Mechanical Engineering Posts);
- (iv) Central Water Engineering Service (Mechanical Engineering Posts);
- (v) Central Power Engineering Service (Mechanical Engineering Posts);
- (vi) Assistant Development Officer (Engineering) (Mechanical) in the Directorate General of Technical Development;
- (vii) Indian Ordnance Factories Service, (Engineering Branch) (Mechanical Engineering Posts).
- (viii) Deputy Armament Supply Officer, Grade II in the Ministry of Defence;
- (ix) Mechanical Engineer (Junior) in the Geological Survey of India;
- (x) Assistant Drilling Engineer in the Geological Survey of India;
- (xi) Assistant Manager (Factories) (P&T Telecom. Factories Organisation);
- (xii) Military Engineer Services (Electrical & Mechanical Cadre)

Class II Services/Posts

- (xiii) Assistant Mechanical Engineer, Class II, in the Geological Survey of India.

C. ELECTRICAL ENGINEERING GROUP OF SERVICES

Class I Services/Posts

- (i) Indian Railway Service of Electrical Engineers;
- (ii) Central Electrical Engineering Service;
- (iii) Indian Inspection Service; (Engineering Branch) (Electrical Engineering Posts);
- (iv) Indian Supply Service (Electrical Engineering Posts);
- (v) Indian Ordnance Factories Service, (Engineering Branch) (Electrical Engineering Posts);
- (vi) Central Power Engineering Service (Electrical Engineering Posts);
- (vii) Assistant Development Officer (Engineering); (Electrical) in the Directorate General of Technical Development;
- (viii) Assistant Executive Engineer (Electrical) (P&T Civil Engineering Wing).

Class II Services/Posts

- (ix) Assistant Engineer (Electrical) (P&T Civil Engineering Wing).
- (x) Assistant Engineer (Electrical) in the Civil Construction Wing of All India Radio.

D. SIGNAL ENGINEERING GROUP OF SERVICES—

Class I Services/Posts

- (i) Indian Railway Service of Signal Engineers;
- (ii) Indian Inspection Service (Engineering Branch) (Signal Engineering Posts);
- (iii) Telegraph Engineering Service.

Class II Services/Posts

- (iv) Telegraph Traffic Service.

2. Reservation will be made for candidates belonging to the Scheduled Castes and the Scheduled Tribes in respect of vacancies as may be fixed by the Government of India.

Scheduled Castes/Tribes mean any of the Castes/Tribes mentioned in the Constitution (Scheduled Castes) Order, 1950, the Constitution (Scheduled Castes) (Part C States) Order, 1951, the Constitution (Scheduled Tribes) Order, 1950 and the Constitution (Scheduled Tribes) (Part C States) Order, 1951, as amended by the Scheduled Castes and Scheduled Tribes Lists (Modification) Order, 1956 read with the Bombay Reorganisation Act, 1960 and the Punjab Reorganisation Act, 1966; the Constitution (Jammu and Kashmir) Scheduled Castes Order, 1956, the Constitution (Andaman and Nicobar Islands) Scheduled Tribes Order, 1959, the Constitution (Dadra and Nagar Haveli) Scheduled Castes, Order, 1962, the Constitution (Dadra and Nagar Haveli) Scheduled Tribes Order, 1962, the Constitution (Pondicherry) Scheduled Castes Order 1964, the Constitution (Scheduled Tribes) (Uttar Pradesh) Order 1967, the Constitution (Goa, Daman and Diu) Scheduled Castes Order, 1968, the Constitution (Goa, Daman and Diu) Scheduled Tribes Order, 1968 and the Constitution (Nagaland) Scheduled Tribes Order, 1970.

3. The examination under these rules shall be conducted by the Commission in the manner prescribed in Appendix I to these rules.

The dates on which and the places at which the examination will be held shall be fixed by the Commission.

4. A candidate must be either :—

- (a) a citizen of India or
- (b) a subject of Sikkim, or
- (c) a subject of Nepal, or
- (d) a subject of Bhutan, or
- (e) a Tibetan refugee who came over to India before the 1st January, 1962, with the intention of permanently settling in India, or

(f) a person of Indian origin who has migrated from Pakistan Burma, Sri Lanka (formerly known as Ceylon) and the East African countries of Kenya, Uganda and the United Republic of Tanzania (formerly Tanganyika and Zanzibar) with the intention of permanently settling in India;

Provided that a candidate belonging to categories (c), (d) (e) and (f) above shall be a person in whose favour a certificate of eligibility has been issued by the Government of India.

A candidate in whose case a certificate of eligibility is necessary may be admitted to the examination and he may also be provisionally appointed subject to the necessary certificate being given to him by the Government.

5. (a) A candidate for this examination must have attained the age of 20 years and must not have attained the age of 25 years on the 1st August 1974, i.e. he must have been born not earlier than the 2nd August, 1949 and not later than the 1st August, 1954.

(b) The upper age-limit of 25 years will be relaxable up to 30 years in the case of the Government servants of the following categories if they are employed in a Department/Office under the control of any of the authorities mentioned in column I below and apply for admission to the examination for the corresponding services(s)/post(s) mentioned in Column 2.

- (i) A candidate who holds substantively a permanent post in the particular Department/Office concerned. This relaxation will not be admissible to a probationer appointed against a permanent post in the Department/Office during the period of his probation.
- (ii) A candidate who has been continuously in a temporary service in the particular Department/Office for at least 3 years on the 1st August, 1974.
- (iii) A temporary Assistant Engineer recruited through the Commission to the Civil, Electrical Signal and Mechanical Engineering and Transportation (Power) Departments of Indian Railways will also be eligible for this concession irrespective of the length of his service in the Department.

Column I	Column 2
Railway Department	I.R.S.E. L.R.S.F.E. I.R.S.S.E. I.R.S.M.E.
Central Public Works Department	C.E.S. Class I C.E.E.S. Class I
Directorate General of Supplies and Disposals	I.I.S. Class I I.S.S. Class I
Engineer in Chief Army Headquarters	M.E.S. Class I (B. & R. Cadre) M.F.S., Class I (F. & M. Cadre)
Directorate General Ordnance Factories	I.O.F.S., Class I
Central Water and Power Commission	C.W.E. (Class I) Service. C.P.E. (Class I) Service.
Directorate General of Technical Development	Assistant Development Officer (Engineering), Class I.
Geological Survey of India	Mechanical Engineer (Junior), Class I

NOTE.—The period of apprenticeship, if followed by appointment against a working post on the Railways may be treated as Railway Service for the purpose of age concession.

(c) The upper age-limit of 25 years will be relaxable up to 30 years also in respect of candidates for the Telegraph Engineering Service, Class I and Telegraph Traffic Service, Class II, in the case of the following :

- (i) A candidate who holds substantively a permanent post in the Posts and Telegraphs Department. This relaxation will not be admissible to a probationer appointed against a permanent post in the Department during the period of his probation.
- (ii) A candidate who has continuously held for a period of not less than 2 years on the 1st August, 1974 any of the following temporary posts under the Posts and Telegraphs Department :—
 - 1. Repeater Station Assistant.
 - 2. Foreman or Technical Assistant Telegraph Workshops.
 - 3. Temporary Assistant Engineer Workshops.
 - 4. Engineering Supervisor.
 - 5. Workshop Supervisor.

(d) The upper age-limit prescribed above will be further relaxable. :

- (i) Up to a maximum of five years if a candidate belongs to a Scheduled Caste or a Scheduled Tribe;
- (ii) Up to a maximum of three years, if a candidate is a *bona fide* displaced person from erstwhile East Pakistan and had migrated to India on or after 1st January, 1964 but before the 25th March, 1971. This concession will not, however, be admissible to a candidate who has already appeared at five previous examinations;
- (iii) Up to a maximum of eight years, if a candidate belongs to a Scheduled Caste or a Scheduled Tribe and is also a *bona fide* displaced person from erstwhile East Pakistan and had migrated to India on or after 1st January, 1964 but before 25th March, 1971. This concession will not, however, be admissible to a candidate who has already appeared at ten previous examinations;
- (iv) Up to a maximum of three years if a candidate is a resident of Union Territory of Pondicherry and has received education through the medium of French at some stage;
- (v) Up to a maximum of three years if a candidate is a *bona fide* repatriate of Indian origin, from Sri Lanka (formerly known as Ceylon) and has migrated to India on or after 1st November, 1964, under the Indo-Ceylon Agreement of October, 1964. This concession will not, however, be admissible to a candidate who has already appeared at five previous examinations;
- (vi) Up to a maximum of eight years if a candidate belongs to a Scheduled Caste or a Scheduled Tribe and is also a *bona fide* repatriate of Indian origin from Sri Lanka (formerly known as Ceylon) and has migrated to India on or after 1st November, 1964 under the Indo-Ceylon Agreement of October, 1964. This concession will not however, be admissible to a candidate who has already appeared at ten previous examinations;
- (vii) Up to a maximum of three years if a candidate is of Indian origin and has migrated from Kenya, Uganda and the United Republic of Tanzania (formerly Tanganyika and Zanzibar).
- (viii) Up to a maximum of three years if a candidate is a *bona fide* repatriate of Indian origin from Burma and has migrated to India on or after 1st June 1963. This concession will not, however, be admissible to a candidate who has already appeared at five previous examinations;

(ix) Up to a maximum of eight years if a candidate belongs to a Scheduled Caste or a Scheduled Tribe and is also *bona fide* repatriate of Indian origin from Burma and has migrated to India on or after 1st June, 1963. This concession will not, however, be admissible to a candidate who has already appeared at ten previous examinations,

(x) Up to a maximum of three years in the case of Defence Services Personnel, disabled in operations during hostilities with any foreign country or in a disturbed area, and released as a consequence thereof. This concession will not, however, be admissible to a candidate who has already appeared at five previous examinations;

(xi) Up to a maximum of eight years in the case of Defence Services personnel, disabled in operations during hostilities with any foreign country or in a disturbed area, and released as a consequence of the Scheduled Castes or the Scheduled Tribes. This concession will not, however, be admissible to a candidate who has already appeared at ten previous examinations.

(xii) Up to a maximum of three years if a candidate is a resident of the Union Territory of Goa, Daman and Diu;

(xiii) Up to a maximum of three years in the case of Border Security Force Personnel disabled in operations during Indo-Pak hostilities of 1971, and released as a consequence thereof; and

(xiv) Up to a maximum of eight years in the case of Border Security Force personnel, disabled in operations during Indo-Pak hostilities of 1971, and released as a consequence thereof who belong to the Scheduled Castes or the Scheduled Tribes.

N.B. (i) For the purposes of this Rule a candidate shall be deemed to have competed at the examination once for all the Services/posts ordinarily covered by the examination if he competes for any one or more of the Services/posts.

A candidate shall be deemed to have competed at the examination if he actually appears in any one or more subjects.

N.B. (ii) The candidature of a person who is admitted to the examination under the age concession mentioned in Rule 5(b) or 5(c) above shall be cancelled, if, after submitting his application he resigns from service or his services are terminated by his department/office either before or after taking the examination. He will, however, continue to be eligible if he is retrenched from the Service or post after submitting his application.

A candidate who after submitting his application, to the department is transferred to other department/office, will be eligible to compete under departmental age concession for the service, for which he would have been eligible, but for his transfer, provided his application has been forwarded by his parent department.

SAVE AS PROVIDED ABOVE THE AGE LIMITS PRESCRIBED CAN IN NO CASE BE RELAXED.

6. A candidate must have—

- (A) obtained a degree in Engineering from a University incorporated by an Act of the Central or State Legislature in India or other educational Institutes established by an Act of Parliament or declared to be deemed as Universities under Section 3 of the University Grants Commission Act, 1956; or
- (B) passed Sections A and B of the Institution Examinations of the Institution of Engineers (India); or
- (C) obtained a degree/diploma in Engineering from such foreign Universities/Colleges/Institutions and under such conditions as may be recognised by the Government for the purpose from time to time.

Provided that a candidate for the Indian Railway Service of Electrical Engineers, the Indian Railway Service of Signal Engineers, the Indian Railway Service of Mechanical Engineers, the Telegraph Engineering Service Class I, the Telegraph Traffic Service, Class II, the Central Electrical Engineering Services Class I, the Central Water Engineering (Class I) Service (Mechanical Engineering posts) the Central Power Engineering (Class I) Service and the post of Assistant Development Officer (Engineering) Class I may possess any of the above qualifications or any of the qualifications mentioned below namely :

- (a) a pass in the Graduate Membership Examination of the institution of Electronics and Tele-communication Engineers (India);
- (b) a pass in the Graduate Membership Examination of the Institution of Electronics and Radio Engineers, London held after November, 1959.

The Graduate Membership Examination of the Institution of Electronics and Radio Engineers London held prior to November, 1959 is also acceptable subject to the following conditions :—

- (1) that the candidate who have passed the examination held prior to November, 1959, should have appeared and passed in the following additional papers according to post-1959 scheme of Graduate Membership Examination;
 - (i) Principles of Radio and Electronics I (Section 'A').
 - (ii) Mathematics II (Section 'B').
- (2) that the candidates concerned should produce a certificate from the Institution of Electronics and Radio Engineers, London, in fulfilment of the condition prescribed at (1) above.

NOTE 1.—A candidate who has appeared at an examination the passing of which would render him eligible to appear at this examination, but has not been informed of the result may, apply for admission to the examination. A candidate who intends to appear at such a qualifying examination may also apply, provided that the qualifying examination including the Practical training, Project work etc. it is completed before the commencement of this examination. Such candidates will be admitted to the examination, if otherwise eligible, but the admission would be deemed to be provisional and subject to cancellation, if they do not produce proof of having passed the examination including the Practical training, Project work etc. it as soon as possible, and in any case not later than two months after the commencement of this examination.

NOTE 2.—In exceptional cases, the Commission may treat a candidate, who has not any of the qualifications prescribed in this rule, as educationally qualified provided that he has passed examinations conducted by other institutions, the standard of which in the opinion of the Commission, justifies his admission to the examination.

Note 3.—A candidate who is otherwise qualified but who has taken a degree from a foreign University which is not recognised by Government, may also apply to the Commission and may be admitted to the examination at the discretion of the Commission.

7. Candidates must pay the fee prescribed in Annexure I to the Commission's Notice.

8. A candidate already in Government Service, whether in a permanent or a temporary capacity or as a work-charged employee other than a casual or daily-rated employee must obtain prior permission of the Head of the Department or Office concerned to appear for the examination.

9. The decision of the Commission as to the eligibility or otherwise of a candidate for admission to the examination shall be final.

10. No candidate shall be admitted to the examination unless he holds a certificate of admission from the Commission.

11. Any attempt on the part of a candidate to obtain support for his candidature by any means may disqualify him for admission.

12. A candidate who is or has been declared by the Commission guilty of impersonation or of submitting fabricated documents or documents which have been tampered with or of making statements which are incorrect or false or of suppressing material information or otherwise resorting to any other irregular or improper means for obtaining admission to the examination, or of using or attempting to use unfair means in the examination hall or of misbehaviour in the examination hall, may in addition to rendering himself liable to criminal prosecution—

- (a) be debarred permanently or for a specified period :—
 - (i) by the Commission, from admission to any examination or appearance at any interview held by the Commission for selection of candidates, and
 - (ii) by the Government from employment under them;
- (b) be liable to disciplinary action under the appropriate rules, if he is already in service under Government.

13. Candidates who obtain such minimum qualifying marks in the written examination as may be fixed by the Commission in their discretion shall be summoned by them for an interview for a personality test.

14. After the examination the candidates will be arranged by the Commission in the order of merit as disclosed by the aggregate marks finally awarded to each candidate; and in that order so many candidates as are found by the Commission to be qualified by the examination shall be recommended for appointment upto the number of unreserved vacancies decided to be filled on the results of the examination.

Provided that candidates belonging to the Scheduled Castes or the Scheduled Tribes may, to the extent the number of vacancies reserved for the Scheduled Castes and the Scheduled Tribes cannot be filled on the basis of the general standard, be recommended by the Commission by a relaxed standard to make up the deficiency in the reserved quota, subject to the fitness of these candidates for appointment to the Services/posts, irrespective of their ranks in the order of merit at the examination.

15. The form and manner of communication of the result of the examination to individual candidates shall be decided by the Commission in their discretion and the Commission will not enter into correspondence with them regarding the result.

16. Due consideration will be given, at the time of making appointments on the results of the examination, to the preferences expressed by a candidate for various services/posts at the time of his application.

No request for alteration in the preferences indicated by a candidate in respect of Services/posts covered by the group or groups of Services/posts viz : Civil Engineering, Mechanical Engineering, Electrical Engineering and Signal Engineering (cf. rule 1 of the Rules), for which he is competing would be considered unless the request for such alteration is received in the Office of the Union Public Service Commission within 14 days of the date of announcement of the final results of the examination.

17. Success in the examination confers no right to appointment unless Government are satisfied after such an enquiry as may be considered necessary, that the candidate is suitable in all respects for appointment to the service.

18. A candidate must be in good mental and bodily health and free from any physical defect likely to interfere with the discharge of his duties as an officer of the service. A candidate who (after such physical examination as Government or the appointing authority, as the case may be, may prescribe) is found not to satisfy those requirements will not be appointed. All candidates who are declared qualified for the Personality Test will be physically examined at the

place where they are summoned for interview, either immediately before or after the interview. Candidates will have to pay a fee of Rs. 16.00 to the Medical Board. The fact that a candidate has been physically examined will not mean or imply that he will be considered for appointment.

In order to prevent disappointment candidates are advised to have themselves examined by a Government Medical Officer of the standing of a Civil Surgeon, before applying for admission to the examination. Particulars of the nature of the medical test to which candidates will be subjected before appointment and of the standard required are given in Appendix II. For the disabled ex-Defence Services personnel the standards will be relaxed consistent with the requirements of each Service.

19. No person

- (a) who has entered into or contracted a marriage with a person having a spouse living or
- (b) who having a spouse living, has entered into or contracted a marriage with any person.

shall be eligible for appointment to service.

Provided that the Central Government may, if satisfied that such marriage is permissible under the personal law applicable to such person and the other party to the marriage and there are other ground for so doing, exempt any person from the operation of this rule.

20. Brief particulars relating to the Services/posts to which recruitment is being made through this examination are given in Appendix III.

A. L. GUPTA,
Secretary

APPENDIX I

I. The examination shall be conducted according to the following plan:—

Part I: Compulsory and Optional papers as given in para 2 below against each of the four groups of Services/Posts viz., Civil Engineering Mechanical Engineering, Electrical, Engineering and Signal Engineering. The standard and syllabi prescribed for these papers are given in the Schedule to this Appendix. The duration of the papers except 'General Knowledge' will be of 3 hours. The duration of the paper of 'General Knowledge' will be of 2 hours.

Part II: Personality test for such candidates as may be called by the Commission carrying a maximum of 200 marks. (Please see para 7 below).

2. The following will be the subjects for the written examination:—

A. CIVIL ENGINEERING GROUP OF SERVICES/POSTS

For Indian Railway Service of Engineers/Central Engineering Service, Class I/Indian Inspection Service, Class I (Engineering Branch) (Civil Engineering posts)/Military Engineer Services, Class I (Buildings and Roads Cadre)/Central Water Engineering (Class I) Service (Civil Engineering posts)/Central Engineering Service (Roads) Class I/Assistant Executive Engineer (Civil) Class I (P&T Civil Engineering Wing)/Assistant Engineer (Civil) Class II (P&T Civil Engineering Wing)/Assistant Director, Class II (Experimental Housing and Designs) in the National Buildings Organisation/Assistant Engineer (Civil) Class II in the Civil Construction Wing of the All India Radio.

COMPULSORY SUBJECTS

MAXIMUM MARKS

1. English	100
2. General Knowledge	100
Total	200

OPTIONAL SUBJECTS (ANY SEVEN OF THE FOLLOWING SUBJECTS)

1. Applied Mechanics	100
2. Theory and Design of Structures—I	100
3. Surveying	100
4. Theory and Design of Structures—II	100
5. Soil Mechanics & Foundation Engineering	100
6. Sanitary Engineering and Water Supply	100
7. Transport Engineering	100
8. Mathematics	100
9. Fluid Mechanics	100
10. Water Resources Engineering	100
Total	700

B. MECHANICAL ENGINEERING GROUP OF SERVICES/POSTS

For Indian Railway Service of Mechanical Engineers/Indian Inspection Service, Class I (Engineering Branch) (Mechanical Engineering posts)/Indian Supply Service, Class I (Mechanical Engineering posts)/Central Water Engineering (Class I) Service (Mechanical Engineering posts)/Central Power Engineering (Class I) Service (Mechanical Engineering posts)/Assistant Development Officer (Engineering) (Mechanical) Class I in D.G.T.D./Indian Ordnance Factories Service, Class I (Engineering Branch) (Mechanical Engineering Posts) Deputy Armament Supply Officer, Grade II (Class I) in the Ministry of Defence/Mechanical Engineer (Junior) Class I in GSI/Assistant Mechanical Engineer Class II in GSI/Assistant Drilling Engineer, Class I in GSI/Assistant Manager (Factories) Class I ((P&T Telecom, Factories Organisation)/Military Engineer Services Class I (Electrical & Mechanical Cadre).

COMPULSORY SUBJECTS	MAXIMUM MARKS
1. English	100
2. General Knowledge	100
Total	200

OPTIONAL SUBJECTS (ANY SEVEN OF THE FOLLOWING SUBJECTS)

1. Applied Mechanics	100
2. Theory of Machines	100
3. Production Technology	100
4. Production Management	100
5. Fluid Mechanics and Fluid Machinery	100
6. Heat Power	100
7. Heat Transfer, Refrigeration and Air Conditioning	100
8. Mechanical Engineering Design	100
9. Mathematics	100
10. Electrical Machines, Measurements and Automatic Control	100
Total	700

C. ELECTRICAL ENGINEERING GROUP OF SERVICES/POSTS

For Indian Railway Service of Electrical Engineers/Central Electrical Engineering Service, Class I/Indian Inspection Service, Class I (Engineering Branch) (Electrical Engineering posts)/ Indian Supply Service, Class I (Electrical Engineering posts)/Indian Ordnance Factories Service, Class I (Engi-

neering Branch) (Electrical Engineering Posts)/Central Power Engineering Class I) Service (Electrical Engineering posts)/Assistant Development Officer (Engineering) (Electrical), Class I in DGT/Assistant Executive Engineer (Electrical), Class I (P&T Civil Engineering Wing)/Assistant Engineer (Electrical) Class II (P&T Civil Engineering Wing)/Assistant Engineer (Electrical) Class II in the Civil Construction Wing All India Radio.

COMPULSORY SUBJECTS	MAXIMUM MARKS
1. English	100
2. General Knowledge	100
Total	200

OPTIONAL SUBJECTS (ANY SEVEN OF THE FOLLOWING SUBJECTS)

1. Mathematics	100
2. Mechanics	100
3. Circuit Theory	100
4. Electrical Measurements and Instrumentation	100
5. Control Engineering	100
6. Electric Power Systems	100
7. Electric Power Utilization	100
8. Electric Machines	100
9. Electronics Engineering	100
10. Applied Thermodynamics	100
Total	700

D. SIGNAL ENGINEERING GROUP OF SERVICES/POSTS

For Indian Railway Service of Signal Engineers/Indian Inspection Service, Class I (Engineering Branch) (Signal Engineering posts)/Telegraph Engineering Service Class I/ Telegraph Traffic Service, Class II.

COMPULSORY SUBJECTS	MAXIMUM MARKS
1. English	100
2. General Knowledge	100
Total	200

OPTIONAL SUBJECTS (ANY SEVEN OF THE FOLLOWING SUBJECTS)

1. Mathematics	100
2. Mechanics	100
3. Circuit Theory	100
4. Electrical Measurements and Instrumentation	100
5. Control Engineering	100
6. Radio Communication Engineering	100
7. Line Communication Engineering	100
8. Electromagnetic Theory and its Applications	100
9. Electronic Devices and Circuits	100
10. Electrical Technology	100
Total	700

3. All papers must be answered in English.

4. A candidate taking 'Surveying' as an optional subject must satisfy the Commission that he has undergone adequate and satisfactory training in Surveying, including practical Surveying equivalent to that given in a full course for a Degree or Diploma in Civil Engineering.

5. Candidates must write the papers in their own hand. In no circumstances will they be allowed the help of a scribe to write the answers for them.

6. The Commission have discretion to fix qualifying marks in any or all the subjects of the examination.

7. Special attention will be paid in the Personality Test to assessing the candidates capacity for leadership, initiative and intellectual curiosity, tact and other social qualities mental and physical energy, powers of practical application and integrity of character.

8. Marks will not be allotted for mere superficial knowledge.

9. Deductions up to 5 per cent, of the maximum marks for the written subjects will be made for illegible handwriting.

10. Credit will be given for orderly, effective and exact expression combined with due economy of words in all subjects of the examination.

11. Candidates are expected to be familiar with the metric system of weights and measures. In the question paper wherever necessary, questions involving the use of metric system of weights and measures may be set.

NOTE.—Candidates will be supplied with tables in metric units compiled and published by the Indian Standards Institution in the examination hall for reference purposes, wherever considered necessary.

SCHEDULE TO APPENDIX I

Standard and Syllabus

The standard of papers in English and General Knowledge will be such as may be expected of an Engineering Graduate. The standard of papers, in other subjects will approximately be that of an Engineering Degree examination of an Indian University. There will be no practical examination in any of the subjects.

1. ENGLISH

Questions to test the understanding of and the power to write English. Passages will usually be set for summary or précis.

2. GENERAL KNOWLEDGE

General knowledge including knowledge of current events and of such matters of everyday observation and experience in their scientific aspects as may be expected of an educated person who has not made a special study of any scientific subjects. The paper will also include questions on History of India and Geography of a nature which candidates should be able to answer without special study.

3. APPLIED MECHANICS

Statics : Coplanar and multiplaner force systems; free body diagram; friction. Centroid and second moments of plane figures and solid bodies. Force and funicular polygons, Maxwell diagram. Equilibrium of suspension cables. Principles of virtual work.

Simple machines, velocity ratio and mechanical advantage, efficiency. Drives and gears.

Dynamics : Units and dimensions—Gravitational and absolute systems, M.K.S. and S.I. units.

Kinematics—Rectilinear, curvilinear and rototational motion; relative motion; velocity diagrams of simple mechanics, instantaneous centre; acceleration diagram.

Kinetics—Equations of rectilinear and curvilinear motion; simple harmonic motion; momentum and impulse; work, energy and power; impact. Equation of motion of a rigid body rotates about a fixed axis. Oscillation about a fixed axis.

Viscous resistance; forced and damped oscillations. **Strength of Materials**: Stress and strain; Hooke's law. Statically indeterminate problems in tension and compression thermal stresses. Stresses in riveted and welded joints. Bending moment and shearing force diagrams bending and shearing stress in simple and composite beams.

Stress and strain in two dimensions; Mohr's circle and other diagrams; relations between elastic constants, strain gauges.

Reflection of determinate and indeterminate beams; eccentrically loaded short struts, theory of long columns empirical column formulae.

Torsion of shafts; transmission of power; combined bending, direct and torsional stresses.

Strain energy in elastic deformation, stresses due to suddenly applied loads; theorem of Castigliano—application to indeterminate problems.

Thin-walled and thick-walled cylinders and spheres under internal and external pressure, force and shrink fits.

Laminated springs; close-coiled and open-coiled helical springs. Mechanical properties of materials—Tensile and compressive tests; impact test; fatigue and creep of metals. Theories of failure. Structure of metals.

4. THEORY AND DESIGN OF STRUCTURES—I

Structural analysis

Theory of simple bending; deflection of beams; principle of super-position; reciprocal theorem; unsymmetrical bending. Principle stresses.

Determinate and indeterminate structures, plane and simple space frames, degrees of freedom virtual work, energy theorems, deflection of trusses, redundant frames, force and compatibility, three moment equation, slope deflection and moment distribution methods, column analogy, unsymmetric sections and non-prismatic members. Energy methods; Approximate and numerical methods.

Moving loads. Muler-Breslau principle. Influence lines for simply supported and continuous beams and frames.

Analysis of two hinged and fixed arches, spandrel braced arch; rib shortening and temperature effects.

Introduction to matrix methods of analysis. Stiffness and flexibility methods.

Suspension Bridges—three hinged and two hinged stiffening girders.

Reformation stresses. Secondary stresses, their importance and relevance, methods of evaluating secondary stresses.

Plastic analysis of steel structures—upper and lower bound theorems.

Timber Design

Timber structures, allowable stresses, laminated glued timbers bolted and nailed joints, ring connectors, columns, beams, built up beams and trestles.

Masonry Design

Types of masonry, permissible stresses, load bearing walls and columns, retaining walls and arches.

Steel Design

Considerations governing factors of safety and load factors.

Design of tension, compression (including stability), flexural members, built up beams and plate girders; riveted and welded connections, semi-rigid and rigid connections.

Design of steel stanchions, gusseted and slab bases and base connections; crane and gantry girders; roof trusses, trussed girders, steel frames for industrial and multistoried buildings.

General considerations for the design of road and railway bridges including Impact factors, wind loads, seismic loads, water current forces, braking forces and temperature forces. Design of bearings for bridges.

Plastic design of steel structures—continuous beams and portals.

5. SURVEYING

General : Principles of surveying; types of maps; conventional signs; surveying instruments—chains, tapes, levels, theodolites, compasses, plane table, tacheometers, altimeters and accessory instruments—their use and temporary adjustments; permanent adjustments of compass, levels and theodolites; recording survey observations, plotting of maps and sections; sources of errors, error propagation, precision and weighting of observations, method of least squares applied to simple problems; precision of different methods of surveying.

Measurement of Distances, Directions and Heights

Principles of different methods of distance measurement; chaining and taping, corrections to measured lengths; reference meridians, bearings, magnetic declination and local attraction; measurement of horizontal and vertical angles; different types of levelling operations; spirit levelling, refraction and curvature corrections, trigonometric levelling, reciprocal levelling, levelling by altimeters, precision of levelling.

Methods of Surveying : Chain and compass survey; theodolite and tacheometric traversing, traverse computations and adjustments, omitted measurements; classification of triangulation, minor triangulation, inter-visibility and signals, reduction and extension of base line, satellite stations, computation and adjustment of simple figures; principle of trilateration; convergence of meridians, spherical excess; methods of place table surveying, solution of two and three point problems, use of tacheometric alidade; contours and their uses, methods of contouring, earthwork computations.

Setting out Works : Setting out directions and grades; tunnel surveying—surface survey, alignment, transfer of alignment underground, setting out and levelling underground; curves—types, elements, design and setting out; requirements of railway and highway curves; special field problems.

Practical Astronomy

Solution of spherical triangle, Napier's rule; definitions of astronomical terms; systems of coordinates; different systems of time; determination of azimuth, latitude, longitude and time by observations on stars or sun at transit, elongation or extra-meridian nautical almanac.

Photogrammetric Mapping

Types of photographs, basic definitions and assumptions; phototheodolite and terrestrial photogrammetry; geometry of a near vertical photograph; scale and flying height; height and tilt displacements; photographic mission; stereoscopes; determination of heights from parallax measurements; radial plotting and triangulations; interpretation of photographs for engineering purposes, construction and use of mosaics.

Hydrographic Surveying

Mean sea level, tides and their prediction; methods of sounding, location and plotting of soundings, station pointer; shore line and river surveys.

6. THEORY AND DESIGN OF STRUCTURES—II

Concrete Technology

Design of concrete mixes, admixtures in concrete and their effects. Quality control, laboratory and field tests, creep and shrinkage.

Re-inforcing Material

Mild Steel and high strength deformed steel bars, high Tensile steel—composition, standard specifications including stress strain curve—percentage elongation, relaxation etc., standard tests.

Composite construction (Steel and R.C.C.; Pre-stressed Concrete and R.C.C.).

Shear transfer at interface of members, stress variation during construction, types of shear connectors and their design, differential shrinkage and creep in composite structures.

Reinforced concrete design :

Design of slabs, simple and continuous beams, tee beams, columns, column footings—single and combined, raft foundations, staircases, elevated water tanks, bunkers and silos, retaining walls, piers, abutments, portals, piles and pile caps, arches and frames. Encashed beams and columns. Factory governing distribution of concentrated loads in grids.

Design of formwork.

Ultimate load design.

Prestressed concrete

Methods and systems of prestressing, anchorages, losses in prestress.

Analysis and design of prestressed concrete girders and poles. Ultimate load design.

7. SOIL MECHANICS AND FOUNDATION ENGINEERING*Soil Mechanics*

Origin of soils, soil formation, identification and classification of soils—based on grain size distribution and Atterberg limits; void ratio, porosity, moisture content, compaction, permeability; laboratory and field tests.

Seepage, construction of flow nets, uplift and quick sand condition.

Determination of shear strength parameters for different drainage and stress conditions—Triaxial, unconfined and direct shear tests for sands, silts, normally loaded and pre-compressed clays.

Earth pressure theories—Rankine's and Coulomb's, curved rupture surfaces, analytical and graphical methods.

Stability of slopes—friction circle method, slices method.

Soil consolidation—Terzaghi's theory for one dimensional consolidation; rate of settlement and ultimate settlement. Total and effective stress analysis; pressure distribution in soils; Boussinesq and Westergaard theories.

Soil stabilization—Mechanical, Chemical.

Foundation Engineering

(i) Soil survey, and subsurface exploration including field and laboratory tests.

(ii) Bearing capacity of footings (strips, square, rectangular and circular), piles, wells and caissons on shear and settlement considerations.

(iii) Bracing of open cuts, bottom heave.

(iv) Sheet piles, cantilevered and anchored.

8. SANITARY ENGINEERING AND WATER SUPPLY.

(a) Sanitary Engineering—Sanitation—Site and orientation of buildings, damp proof course, ventilation, house drainage, conservancy and water-borne systems. Sanitary appliances. Constructions and testing of house drains. Pail depots. Public latrines and urinals.

Sanitary sewage, industrial waste, storm sewage, infiltration and their estimation.

461GI/73

Separate, combined and partially separate systems. Hydraulics of flow through sewers, sewer shapes, factors influencing the design of sewers.

Sewer appurtenances : Manholes, inlets; junctions, outlets, inverted syphon, ejectors.

Characteristics and composition of sewage. Methods of disposal.

Sewage treatment, its necessity, principles of treatment, working principles and design of treatment units, chambers, grit chamber, sedimentation tank, contact bed, trickling filter. Activated sludge process. Septic tank, Imho tank, oxidation pond, oxidation ditch, lagoons.

Sludge, its characteristics, methods of treatment and disposal. Selection of site for disposal.

Rural sanitation, rural latrines.

Environmental pollution.

Refuse—Collection, conveyance and disposal.

(b) Water Supply.—Sources of water; estimation of water Resources, ground water hydraulics; wells and infiltration galleries; methods of predicting population; demands of water.

Quality of water—physical, chemical and bacteriological analyses. Impurities in water and water-borne diseases.

Intakes—pumping and gravity schemes.

Water treatment—Principles of settling, coagulation flocculation and sedimentation; filtration—slow sand, rapid sand and pressure filters; disinfection; softening; removal of taste, odour, iron, manganese, fluoride and salinity.

Distribution—Layouts, storage requirements, hydraulics of pipe lines, analysis of net works; pipes, fittings, valves.

Detection and prevention of waste.

Pumps—Capacity and efficiency, types—reciprocating, rotary, centrifugal and deep well pumps.

Pumping stations and their operation.

9. TRANSPORT ENGINEERING

(General principles governing the design and salient features of construction of railways, roads and aerodromes, harbours and docks.)

Railways

Permanent way—ballast, sleepers, rails, chairs and fastenings. Points and crossings—salient features of construction, different types of turn-outs, cross-over formulae and practical rules for setting out.

Plate laying and maintenance of track, super-elevation, creep of rails, ruling gradient, compensation, track resistance, tractive effort, curve resistance, effect of curves. Station yards and machinery, station buildings, platforms, sidings, engine sheds, turn tables, water columns and ash pits.

Signals and interlocking.

Level crossings. Problems in mountain railways.

Tunnels and their construction.

Roads and Aerodromes

Classification of roads—general criteria of planning, capacities; materials—their tests; geometric design standards.

Design of flexible and rigid pavements. Different types of sub-base, base course and wearing surface.

Specifications of construction : construction machinery. Application of traffic engineering; traffic surveys; design of intersections, roads signs, signals and markings.

Aerodromes—Considerations for locations; planning and design of runways, taxi tracks and aprons; principles of planning of terminal and auxiliary buildings; international standards.

Harbours and Docks.—Physical geography in relation to harbours and docks; natural phenomena—prevalance and intensity of winds, coastal changes, accretions and denudation; effect of artificial interference; tidal phenomena; Generation of waves—wave form, height and length, wave velocity and wave action.

Harbours—classification and requirements, choice of site, forms, entrance to harbours, breakwaters—use, types and methods of construction.

Channel regulation—dredging, types of dredgers, reclamation of land, foreshore protection.

Docks—wet, dry and floating; tidal basins—construction and use; dock entrance and locks, construction of lock gates; dock bridges.

Quay walls—different types, their construction and maintenance.

Port buildings and navigation aids.

10. MATHEMATICS

(There will be more emphasis on application of the principles rather than on theory).

(a) Real Analysis :

Continuity and differentiability; partial differentiation and differentiation of implicit functions.

Infinite sequences and series; convergence, absolute and uniform convergence of series; properties of absolutely and uniformly convergent series.

Riemann definition of integration; multiple, surface and line integrals; change of order of integration; differentiation under integral sign; convergence of integral; Beta and Gamma function.

Expansion of functions in Fourier Series.

(b) Functions of a complex variable :

Analytic function; Cauchy-Riemann equations; harmonic and conjugate harmonic functions; properties of analytic functions; power series and Taylor's and Laurent's expansions; Zeros and poles; Contour integration; elements of conformal mapping.

(c) Vector Algebra and Calculus :

Sum and products of vectors and simple application; scalar and vector point functions; differentiation of a vector point function with reference to a scalar variable; gradient of a scalar point function; divergence and curl of a vector point function and their physical meanings; theorems of Gauss, Green and Stokes.

(d) Linear Algebra :

Matrix addition, subtraction and multiplication; adjoint and inverse of a matrix; linear dependence and independence; rank of a matrix; solution of linear homogeneous and non-homogeneous equations; finite vector space; linear transformations; Characteristic polynomial and Cayley-Hamilton theorem; eigen values and eigen-vectors; elementary transformations and diagonalization of a matrix.

(e) Differential equations :

(i) Ordinary differential equations :

Methods of solution including variation of parameters; Series solution and solution of Bessel and Legendre equations; elementary properties of $J_n(x)$, $Y_n(x)$ and $P_n(x)$; application of Laplace transforms.

(ii) Partial differential equations :

Solution of first order equations; solution of Laplace, wave and diffusion equations by the methods of separation of variables, Fourier series and Laplace transform.

(f) Numerical methods :

Approximate solution of algebraic and transcendental equations; principle of iteration; Newton-Raphson method; Regular falsi; interpolation and extrapolation; numerical integration; solution of first order differential equation by Picard and Runge-Kutta methods.

11. FLUID MECHANICS

Properties of fluids—ideal and real.

Fluid Statics : Pressure at a point; manometers and pressure gauges; forces on plane and curved surfaces. Bouyancy—stability of floating and submerged bodies.

Dynamics of Fluid Flow : Laminar and turbulent flow; streamline and path line; equation of continuity; energy and momentum equation; Bernoulli's theorem—its applications and limitations; cavitation. Velocity potential and stream function; rotational and irrotational flow. Free and forced vortices. Flow net.

Fluid flow measurement—Various devices and methods for measurement of velocity and discharge.

Dimensional analysis—Units and dimensions; non-dimensional numbers; Buckingham's pi-theorem; principle of similitude and application to practical problems.

Viscous flow—Flow between static and moving parallel plates; flow through circular tubes; film lubrication; velocity distribution in laminar and turbulent flow. Boundary layer concepts; drag and lift on immersed bodies.

Incompressible flow through pipes—Laminar and turbulent flow, critical velocity; friction loss; Stanton diagram; loss due to sudden enlargement and contraction. Hydraulic and energy grade lines; siphons; pipe net works. Forces on pipe bends.

Compressible flow—Adiabatic and isentropic flow; subsonic and supersonic velocity; Mach number; Shock waves. Water hammer.

Open channel flow—Formulae for uniform flow; best hydraulic cross-section. Specific energy and critical depth; gradually varied flow; classification of surface profiles; control sections; standing wave flume. Surges and waves.

12. WATER RESOURCES ENGINEERING

Hydrology : Hydrologic cycle; precipitation; evaporation, transpiration and infiltration; hydrographs; unit hydrograph analysis. Use of rainfall, runoff and stream flow data; flood estimation and frequency.

Planning for Water Resources : Ground and surface water resources. Surface flows; single and multi-purpose projects. estimation of required storage capacity, reservoir losses. Reservoir silting. Flood absorption. Benefit cost ratio. General Principles of Optimisation.

Ground Water : Simple Hydraulics of ground water flow; estimation of recharge and safe rate of withdrawal.

Water Requirement of Crops : Quality of Irrigation water. Consumptive use of water; estimate of water depth and frequency of irrigation; duty of water; Irrigation Methods and efficiencies.

Distribution system for Canal Irrigation : Determination of required channel capacity; channel losses. Alignment of main and distributary channels.

Design of Canals : Unlined channels in alluvium; the critical tractive stress; principles of sediment transport; regime theories; Lined channels—Hydraulic design and cost analysis, different types of lining; drainage behind lining.

Canal Structures : Designs of regulation, Cross drainage and communication works such as cross regulators, head regulators, canal falls, aqueducts, siphons, level crossings, super-passages, escapes, metering flumes etc. Outlets and modulus.

Water Logging : Its causes and control, design of a drainage system; soil salinity—prevention in canal irrigated areas.

Diversion Headworks : Principles of design of different parts on impermeable and permeable foundations; Khosla's theory; Energy dissipation arrangements; Sediment exclusion.

River Training : Principles and methods.

Storage Works; Types of dams and their characteristics; Two dimensional design of gravity dams; forces acting, uplift and earthquake forces; Criteria for stability. Foundation treatment; joints and galleries.

Embankment Dams; different types; criteria for safe design; control of seepage; stability analysis.

Spillways—different types and their suitability, design of overall and trough (chute) spillway; energy dissipation below spillways. Spillway crest gates—vertical lift and radial gates.

13. THEORY OF MACHINES

Links and Mechanisms :

Links. Kinematic pairs. Higher and lower pairs. Constraints. Slider crank chains. Double slider crank chains. Inversions.

Simple mechanisms with lower pairs. Pantograph. Straight line motions. Steering mechanisms. Hook's joint.

Motions :

Types of motions in machines and mechanisms. Rectilinear and curvilinear, continuous, intermittent, reciprocating and oscillatory motions. Helical and spherical motion.

Velocity and acceleration of bodies moving in straight or curved paths. Braking of vehicles. Velocity and acceleration in machines, analytical and graphical methods. Klein's construction.

Inertia forces in machines. Compound pendulum.

Cams :

Types of followers. Displacement, velocity and acceleration of followers. Cam profile.

Cams with specified contours—parabolic, harmonic, circular arc and tangent cams.

Gears and Gearling :

Conditions for constant velocity ratio. Conjugate tooth action, tooth forms, standard modules and tooth proportions, contact ratio. Interference, helical, bevel and worm gears, gear forces and gear trains, moment of inertia of gear trains. Epicyclic gear trains.

Friction :

Friction in pivots and collars. Disc and conical clutches. Friction circle and friction axis.

Belt, rope and friction drives.

Brakes and dynamometers :

Brakes. Absorption and transmission types of dynamometers.

Flywheels and Governors :

Flywheel—turning moment diagrams. Governors—types, sensitivity, stability, isochronism and hunting of governors.

Balancing :

Balancing of rotating and reciprocating masses. Primary and secondary balancing. Balancing of locomotives. Hammer blow and variation of tractive effort. Balancing of multi-cylinder engines. Balancing machines.

Vibrations :

Free, longitudinal, transverse and torsional vibrations. Damped and torsional vibrations with single degree of freedom. Critical speeds and whirling of shafts and multirotor systems. Vibrations of geared systems.

Gyroscope :

Theory and applications.

14. PRODUCTION TECHNOLOGY

Theory of metal cutting :

Mechanics of metal cutting. Merchant's theory. Tool life. Taylor's equation. Cutting forces. Dynamometers. Economics of machining. Cutting tool materials, high carbon steel, high speed steel, cast non-ferrous alloys, sintered carbides and ceramics. Machinability.

Conventional machine tools :

Basic processes including grinding, boring and gear manufacturing. Specifications, installation, control systems (mechanical, hydraulic and electrical) and maintenance of these machine tools; their acceptance charts. Special purpose machine tools. Transfer lines. Programme controlled machine tools. Numerically controlled machine tools.

Newer machining techniques :

Electro-discharge machining. Electro-chemical machining and grinding. Ultrasonic drilling. Electron beam, laser and plasma machining.

Metal forming :

Shearing. Drawing. Bending and forming. Spinning. Rolling. Drop, upset and press forging. Backward, forward and impact extrusion. High velocity forming. Punch and die design.

Metal casting and joining :

Investment casting. Centrifugal casting. Pressure die casting. Continuous casting. Patterns. Cores. Moulds. Sand casting. Fusion welding. Pressure welding. TIG & MIG welding. Sintering.

Jigs and Fixtures :

Locating elements. Clamping devices. Drill jigs. Milling fixtures.

Metrology :

Surface roughness. Gauging. Inspection of gears. Comparators.

15. PRODUCTION MANAGEMENT

Work Study :

Method study. Motion economy. Process chart symbols. Flow diagram. Operation analysis. SIMO charts. Work measurement. Use of stopwatch procedure for time study data. Use of time study data for wage incentives and collective bargaining.

Design of Production System :

Relation between product design and product cost. Concept of cost of different manufacturing processes. Designing for minimum manufacturing cost factors like fewer parts, optimum tolerances, reduced machining, easy machining. Need for close association between production engineers and designers. Process engineering, product analysis, assembly and flow charts, route sheets and operation sheets.

Plant layout :

Principles of plant layout. Use of travel charts. Flow pattern. Process layout and product layout and combinations. Line balancing flexibility. Work station design. Storage space requirement.

Material handling :

Functions. Engineering and economic factors. Relationship to plant layout. Selection, operation and maintenance of material handling equipment. Types of equipment.

Production planning and control :

Continuous and intermittent production, open job shop and closed job shop, one time large projects. Planning to meet seasonal sales. Graphical techniques and linear programming method. Scheduling and control of production. Despatching. Routing, Progress control. Gantt charts, flow control of material, parts and sub-assemblies to match those of the final product. Inventory control.

Concepts of new techniques :

Operations research. Linear programming. Queueing theory and its application. Value engineering. Network analysis, CPM and PERT. Basic use of computers in production management.

Statistical quality control :

Use of X, R, p. c. charts. Single sampling. Operating characteristics. Double sampling scheme. Sequential sampling. Average sample size. Method of least squares, regression and correlation. Analysis of variance for single and two way classifications.

16. FLUID MECHANICS AND FLUID MACHINERY**A. Fluid Mechanics****Fluids :** Properties of ideal and real fluids.

Fluid statics : Pressure at a point. Manometers and pressure gauges. Forces on plane and curved surfaces. Buoyancy—stability of floating and submerged bodies.

Dynamics of fluid flow: Laminar and turbulent flow. Stream and path lines. Equation of continuity. Energy and momentum equations. Bernoulli's theorem—its application and limitations. Velocity potential and stream function. Rotational and irrotational flow. Free and forced vortices. Flow net.

Fluid measurement : Various devices and methods for measurement of velocity and discharge.

Dimensional analysis: Units and dimensions. Non-dimensional numbers. Buckingham's pi theorem. Raleigh's theorem. Principle of similitude and its application to practical problems.

Viscous flow : Flow between static and moving parallel plates. Flow through circular tubes. Film lubrication. Velocity distribution in laminar and turbulent flow. Boundary layer concepts. Drag and lift on immersed bodies.

Incompressible flow through pipes : Laminar and turbulent flow. Critical velocity. Friction loss. Stanton diagram. Loss due to sudden enlargement and contraction. Hydraulic and energy grade lines. Siphons. Forces on pipe bends. Water hammer.

Compressible flow : Adiabatic and isentropic flow. Subsonic and supersonic velocity. Mach number. Shock waves.

B. Fluid Machinery

Water turbines : Classification. Specific speed. Pelton, Francis, Deriaz, Kaplan and Bulb turbines. Velocity triangles. Work output and efficiency. Turbine models. Characteristics. Cavitation. Draft tubes. Governing. Selection of turbine. Pump storage plants.

Centrifugal pumps : Classification. Specific speed. Velocity triangles. Efficiency. Axial thrust. Characteristic curves. Models. Selection. Turbine pumps. Axial and mixed flow pumps.

Positive displacement pumps : Reciprocating pumps. Gear pumps. Air vessel theory.

Other water lifting devices: Jet, air lift and ram pumps.

Hydraulic appliances : Accumulators. Intensifiers. Presses. Fluid couplings. Torque converters.

Compressors : Reciprocating compressors. Compression stages. Intercooling. Performance.

Centrifugal and axial flow compressors. Energy transfer equation. Effect of compressibility. Velocity diagrams. Efficiency. Performance. Surging.

Fans and blowers : Characteristics. Selection.

17. HEAT POWER

Laws of Thermodynamics : Properties of ideal gases and vapours. First law of thermodynamics and its application to processes of closed and open systems. Simple non-steady flow problems. Second law of thermodynamics and its corollaries. Availability and irreversibility. General thermodynamic relations and their applications.

Power cycles : Vapour power cycles—Carnot and Rankine cycles reheat and regenerative feed water heating cycles, binary vapour cycle. Gas power cycles—Otto, Diesel, Limited Pressure, Joule, Stirling and Ericsson cycles, gas turbine cycle with multistage compression, reheating and regeneration. Deviation of actual cycles from theoretical cycles.

Fuels and combustion : Important fuels and their properties. Combustion calculations. Analysis of products of combustion.

Steam power plant : Modern high pressure boilers. Steam flow through nozzles, critical pressure and discharge, throat and exit areas, friction effects and supersaturation phenomenon. Steam turbine types, velocity diagrams for impulse and reaction turbines, calculation of stage work, blade size, wheel diameter, name of stages and stage and overall efficiencies. Losses in steam turbines. Governing of steam turbines. Steam condensers. Economizers, superheaters and others auxiliaries of steam power plants.

Internal combustion engines and gas turbines : Two and four-stroke Compression Ignition and Spark Ignition engines. Combustion phenomena in CI and SI engines. Detonation. Diesel knock. Scavenging of two stroke engines. Fuel injection and carburation. Lubrication and cooling of engines. Axial and radial flow gas turbines, velocity diagrams, work output and efficiency. Performance and testing of IC engines and gas turbines.

Jet propulsion : Principles of jet propulsion. Turbojet and turboprop engines and their processes. Component and overall efficiencies. Rocket engines.

Nuclear power plants : Elementary knowledge of nuclear power plants including nuclear fuels, reactor types, heat exchangers and radiation shielding.

18. HEAT TRANSFER, REFRIGERATION AND AIR CONDITIONING**A. HEAT TRANSFER****Conduction :**

One-dimensional steady state conduction through homogeneous or composite plane walls, cylinders and spheres. Effect of variable conductivity. Critical thickness of insulation. Heat conduction in presence of internal heat generation and heat dissipation to environment. Heat transfer from fins of uniform cross-section.

One-dimensional unsteady state conduction. Heating and cooling of bodies with negligible internal resistance. Thermocouple time constant. Sudden change in surface temperature of a thick plane wall, cylinder or sphere. Periodic change of surface temperature of a thick plane wall.

Important insulating materials and their properties.

Convection :

Heat convection. Concept of hydrodynamic and thermal boundary layers. Momentum and energy equations for boundary layers on a flat plate. Application of dimensional analysis to free and forced convection. Important dimensionless numbers. Empirical equations for heat transfer by convection. Heat transfer during boiling and condensation, empirical equations.

Radiation :

Thermal radiation. Kirchoff's law. Planck's distribution law. Wien's displacement law. Stefan-Boltzmann's law. Configuration factor. Radiant heat exchange between black and grey surfaces. Gas radiation. Absorptivities of simple shaped gas bodies.

Heat exchangers :

Combined heat transfer. Overall heat transfer coefficient. Types of heat exchangers. Logarithmic mean temperature difference. Heat exchanger effectiveness and number of transfer units. Design of heat exchangers.

B. REFRIGERATION AND AIR CONDITIONING***Refrigeration :***

Refrigeration and heat pump cycles. Vapour compression, absorption, steam jet and air refrigeration systems. Calculation of refrigerant flow rate, coefficient of performance and compressor size. Multiple compression and multiple evaporator systems. Refrigeration load calculation. Designing of refrigerant piping. Refrigeration equipment, its operation and maintenance. Control devices. Important refrigerants and their properties.

Air conditioning :

Psychrometrics and psychometric chart. Comfort air conditioning. Comfort indices and charts. Ventilation requirements. Cooling and dehumidification methods. Industrial air conditioning processes. Outside and inside design conditions. Estimation of cooling and heating loads and calculation of supply air state and rate. Fan and coil selection. Air-conditioning plant layout. Duct sizing. Air Conditioning controls.

19. MECHANICAL ENGINEERING DESIGN

Principles of machine design. Selection of materials and their use in the design of machine elements. Mechanical properties of materials, strength and stiffness. Fatigue behaviour. Stress concentration. Factor of safety and allowable stresses under steady, impact and repeated load conditions.

(i) Design of machine elements :

Joints—pinned, cottered, riveted, welded and threaded joints. Keys. Splines. Eccentrically loaded connections.

Pipes and pipe joints. Expansion joints. Socket and spigot joints.

Cams and eccentrics.

Pistons. Connecting rods. Crank shafts. Flywheels. Brackets. Hangers. Levers and handles. Shears and Punches.

(ii) Design of power transmission elements :

Shafts and axles. Rigid and flexible couplings. Clutches and brakes. Bearings—Journal Footstep, Collar. Ball and Roller types.

Gears.—spur, helical and bevel gears. Gear Trains. Gear lubrication.

Belt, rope and chain drives.

Friction drives. Power screws. Screw Jacks.

(iii) Design of pressure vessels and accessories :

Boiler drums. Air Cylinders. Penstocks. Hydraulic cylinders.

(iv) Design of Springs :

Closed coiled helical springs of round and square Section. Carriage Springs. Spiral Springs.

(v) Design of simple machines :

NOTE :—Candidates will be expected to show competency in making dimensional hand sketches in good proportion. Drawing instruments may be used.

20. ELECTRICAL MACHINES, MEASUREMENTS AND AUTOMATIC CONTROL***Electrical Machines*****(i) D. C. Machines :**

Types and characteristics of D. C. Generators and Motors. Starting speed control and controlling appliances. Parallel operation.

(ii) Circuits :

Analysis of single phase and three phase balanced circuits.

(iii) Transformers :

Single and polyphase transformers—Equivalent circuits—Regulation and Efficiency. Parallel operation. Instrument Transformers.

(iv) Synchronous Machines :

Alternators—Regulation. Parallel operation. Automatic voltage regulators.

Synchronous Motors—Steady state equivalent circuit. V—Curves and Power factor control. Methods of starting.

(v) Induction Motors :

Principles of operation. Equivalent circuit and characteristics. Methods of starting and speed control.

Electrical Instruments and Measurements

Constructional features and theory of Electrical Measuring Instruments for voltage, current, power, energy and power factor. Measurement of resistance, inductance and capacitance—Wheatstone, Maxwell, Anderson and Schering Bridges.

Transducers for measurement of temperature, Pressure and Strain.

Automatic Control

Open loop and closed-loop control systems. Block Diagrams. Transfer functions.

Control system components—Synchros, a.c. and d.c. servomotors and amplidyne.

Control system analysis in time and frequency domains.

Routh's and Nyquist's Stability Criteria and their applications.

Steady State Errors and Error Coefficients

21. MECHANICS

Force systems and force fields. Equivalent systems. Implications of the First law of motion.

Mechanics of a free particle. Description of motion in cartesian, cylindrical and intrinsic coordinates. Second law of motion; accelerations with respect to translating and rotating frames of reference. D'Alembert's principle. Work-energy equation. Equilibrium states and the principle of virtual work.

Mechanics of a system of particles. Covering equations and principles. General Impact problem. Motion of a particle in the force field of another particle; Orbital mechanics.

Mechanics of a rigid body. Euler's equations and their application to the plane motion of rigid bodies. Torque-free rotation and Gyroscopic action.

Mechanics of deformable bodies. Hooke's law. Superposition principle and Castigliano's Theorem. Stress and strain in two dimensions. Mohr's circle and other diagrams. Bonding moment and shearing force diagrams for simple beams. Deflection characteristics of columns. Torsional rigidity for shafts. Strain energy concept.

Elements of mechanical systems. Springs, dashpots, and rigid elements their characteristics. Compatibility and equilibrium equations for elemental interconnections.

22. CIRCUIT THEORY

Circuit elements and their classification. Dependent and independent sources. Important signal waveforms. Calculation of circuit parameters (R , L , C & M) for devices with simple configurations. Kirchoff's laws. Analysis of series, parallel and series-parallel d.c. networks.

Periodic waveforms; effective value. Phasor representation of sinusoidal waveforms. Impedance concept. Active and reactive power, power factor. Steady state analysis of a.c. circuits. Series and parallel resonance : Q-factor and relation to bandwidth; dynamic resistance. Locus diagrams for simple a.c. circuits.

Network theorems : Source transformation, star-mesh conversion; superposition, reciprocity, Thevenin, Norton, compensation and maximum power transfer theorems. Application of the theorems to the steady state solution of networks with d.c. and a.c. excitation.

Three-phase systems. Threewire and four-wire systems. Analysis of 3-phase systems with balanced and unbalanced loads.

Inductively-coupled circuits : Coefficient of coupling; Frequency response of coupled circuits. Single-tuned and double-tuned coupled circuits; critical coupling.

Representation of a waveform as the sum of elementary functions. Fourier expansion of periodic functions. Steady state response of networks to non-sinusoidal periodic functions. Principle of Fourier integral. Discrete and continuous frequency spectra.

Network analysis : Topological considerations. Concept of loop currents and node-voltages and their use in the analysis of d.c. and a.c. networks. Duality; method of obtaining dual networks.

Transient response of simple circuits. Time constants. Determination of initial conditions; continuity of charge and flux-linkages. Forced response and natural response. Concept of complex frequency. Natural frequencies of a network. Operational immittances.

Laplace transformation : main properties; transforms of important signal waveforms. Partial fraction expansion. Complete solution of networks using Laplace transforms.

Network functions : driving-point and transfer functions; poles and zeros; determination of impulse response and frequency response from a network function.

23. ELECTRICAL MEASUREMENTS AND INSTRUMENTATION

Basic methods of measurement : Deflection null, comparison deflection and substitution methods; Analogue and digital methods. Standards for voltage, resistance, inductance, capacitance and ratio. Classification and analysis of errors.

Indicating instruments. Characteristics and applications of permanent magnet, moving coil, moving-iron, dynamometer, electrostatic, rectifier and thermo-couple instruments. Crossed coil instruments. Energymeters. Different types of galvanometers. Electronic Voltmeters : main types and characteristics. Digital voltmeters.

Principal features of recording instruments. Electromagnetic oscilloscopes frequency response of vibrating elements. Cathode ray oscilloscope and its applications.

Measurement of voltage, current and power : Indicating instruments; D.C. and a.c. potentiometers and their applications. Characteristics and applications of instrument transformers. Measurement of power and reactive power in single-phase and three-phase circuits.

Resistance measurement : Voltmeter-ammeter and substitution methods; ohmmeters; Wheatstone and Kelvin bridge methods; Measurement of inductance and capacitance : General features of a.c. bridge methods; null detectors. Q meter and its applications. Measurement of mutual inductance. Dielectric measurements.

Frequency standards. Frequency meters for power, audio and radio frequencies. Oscilloscopic methods. Power factor and phase meters. Harmonic analysers. Measurement of distortion.

Measurement of magnetic flux using fluxmeter, ballistic galvanometer and Hall probes. Determination of B.H. characteristics of magnetic materials. Iron-loss measurements. Epstein square and oscilloscopic methods.

Basic features of an instrumentation scheme. Dynamic response and accuracy of an instrumentation scheme; response to step, ramp and sinusoidal inputs. Interfering and modifying inputs and steps taken to overcome their effects.

Sensing of process variables by transducers. Transducers of the following types : resistance, inductance, capacitance, generator crystal photocell and thermocouple. Basic schemes of measurement of displacement, strain, force, liquid level, pressure, temperature, light intensity, velocity and acceleration.

24. CONTROL ENGINEERING

Open loop and closed loop systems. Effect of feedback. Examples of electrical, mechanical, thermal and chemical systems. Principle of superposition. Linear and nonlinear systems.

Differential equations of dynamical systems. Linear approximation. Laplace transformation and transfer function of linear systems. Block diagram, signal flow graphs, return difference and return ratio.

Impulse, step and ramp response of second order systems. Effect of integral and derivative feedback. Steady state error. Error coefficients. System types.

Frequency response, Stability, Routh-Hurwitz criterion. Nyquist plot. Bode plot. Phase margin and gain margin. Closed loop frequency response. Stability of systems with time delay.

Rules for plotting root locus. Stability determination. Generalized root locus.

Series and feedback compensation. Lead, lag, and lead-lag networks. a.c. compensating networks.

State variable description of simple systems. Representation in matrix form. Transition matrix and time response.

Potentiometers. Synchros and control transformers. Modulators and demodulators. Magnetic and rotary servo amplifiers. a.c. and d.c. servo motors.

25. ELECTRIC POWER SYSTEMS

Economics of hydro, steam and nuclear power generation. General lay-out of different types of power stations. Base-load, peak-load and pumped-storage plants.

Economics of different systems of d.c. and a.c. power distribution. Substation layout.

Electrical and mechanical design of overhead transmission lines. Sag and stress calculations. Effect of wind and ice loading. Preparation and use of stringing charts and sag-templates.

Transmission line parameter calculations. Short, medium and long transmission lines and their performance. Power-circle diagrams. Reactive power requirements.

Formation of corona. Critical voltage. Power loss due to corona. Influence of corona on the design of high voltage transmission lines.

Construction and type testing of insulators. Voltage distribution in a string of insulators and grading.

Types of cables and their construction. Electric and thermal characteristics. Electrostatic stresses and grading. Capacitance of cables and sheath effects.

Principles of operation of different types of switchgear. Methods of arc extinction. Restriking and recovery voltage. Testing of circuit breakers. Different types of protective relays, their construction, operation and testing. Protective schemes for power system equipment.

Fault calculation by symmetrical components. Steady-state and transient stability of power systems. Swing equation and swing curves. Methods of improving stability. System Interconnection.

Load frequency control. Load flow studies. Economic operation of power systems.

Lightning phenomena. Surges in transmission lines due to lightning and switching and their analysis. Protection against travelling waves. Production of high voltages for testing, their control and measurement.

26. ELECTRIC POWER UTILIZATION

Basic features of industrial drives. Choice of electric motors for various drives and estimation of their rating. Behaviour of motors during starting, acceleration, braking and reversing operations. Speed control schemes of the conventional type as well as the closed-loop systems using magnetic amplifier, rotating amplifier and thyristor. Triggering, turn off and control circuits for thyristor applications. Thyristor converters, invertors and choppers. Transient behaviour of drive systems. Excitation systems using magnetic amplifier, rotating amplifier and thyristor for automatic voltage control. Drives for lifts, cranes and machine tools.

Comparative study of the economic and other aspects of different systems of rail traction. Mechanics of train movement and estimation of power and energy requirements and motor ratings. Characteristics of traction motor. Traction drives. Speed-tractive effort. Adhesion. Speed-time and speed-distance curves. Braking and regeneration. Power supply and sub-station equipment and layout. Converting equipment including thyristors and control schemes for train movement. Overhead equipment. Diesel-electric traction.

Theory, performance and application of various types of fractional horse-power machines used in drives and control schemes.

Different methods of electric heating. Construction and performance of high frequency induction and dielectric heating equipment, resistance ovens and arc furnaces. Estimation of power and energy requirements. Power supply problems. Automatic schemes for control of power and temperature. Electric welding, different types of equipment used and their characteristics.

Production of light by different methods. Calculation and measurement of illumination. Distribution of light by reflection, refraction and diffusion. Photometers. Polar curves. Equipment for direct lighting, industrial and commercial lighting, flood lighting and special illumination.

27. ELECTRICAL MACHINES

Direct current machines: Machine windings m.m.f. diagrams and armature reaction. Theory of commutation. Shunt, series and compound generators and motors and their operating characteristics. Parallel operation. Separation of losses and determination of efficiency by various methods. Motor starters. Methods of speed control of motors. Special machines including magnetrons and amplidynes: their theory, performance and applications.

Transformers: Phasor diagrams and equivalent circuit. Determination of equivalent circuit parameters and determination of performance. Parallel operation. Phase conver-

sion. Separation of losses and determination of efficiency by various methods. Autotransformers. Induction and moving coil regulators.

Induction Machines: Polyphase motor and its principle of operation, phasor diagrams and equivalent circuit. Torque-slip characteristic. Crawling. Methods of starting. Determination of the parameters of the equivalent circuit and determination of performance from circle diagram. Motor starters. Methods of speed control of motor including use of thyristor. Applications. Double-cage motor. Induction generator. Single phase motor, its theory, phasor diagrams, characteristics and applications.

Synchronous machines: e.m.f. equation. Two-reaction theory. Phasor and circle diagrams. Suppression of harmonics. Operation on infinite bus. Synchronizing power. Power-angle characteristic and stability. Operating characteristics and determination of performance by different methods. Sudden short-circuit and analysis of oscillogram to determine machine reactances and time-constants. Motor characteristics and determination of performance. Methods of starting. Applications. Natural frequency of oscillation. Reluctance motor. Synchronous induction motor.

a.c. commutator machines: Theory, phasor diagrams and operating characteristics of single-phase series motor, repulsion motor and Schrage motor.

28. ELECTRONICS ENGINEERING

Semiconductors, on junctions. Bipolar transistors. Field-effect transistors. Transistor equivalent circuits. Transistor parameters. Transistor amplifier configurations. Determination of voltage, current, power gain and input-output impedances.

The quiescent operating point. Heat dissipation and thermal stability. Different biasing techniques.

Single and multistage resistance-capacitance and broadband amplifiers. Audio power amplifiers. Class A, B, C and AB amplifiers. Design considerations.

Voltage and current feedback in amplifiers. Effect of feedback on input and output impedances. Stability of feedback amplifiers. Basic oscillator circuits and their analysis. Design considerations.

Astable, monostable and bistable multivibrators. Timebase generators. Wave shaping circuits.

High power vacuum, gas-filled and solid state rectifying devices. Principles and design of single-phase and poly-phase rectifiers. Controlled rectification using thyratrons, ignitrons and silicon controlled rectifiers. Smoothing filters for controlled and uncontrolled rectifiers. Voltage regulator circuits.

29. APPLIED THERMODYNAMICS

Properties of ideal gases and vapours. First law of thermodynamics and its application to closed and open systems. Second law of thermodynamics. Availability and irreversibility. General thermodynamic relations and their applications.

Carnot and Rankine cycles. Reheat and regenerative feed-water heating cycles. Binary vapour cycles. Gas power cycles. Otto, Diesel and Brayton cycles.

High pressure boilers. Steam flow through nozzles. Critical pressure and discharge. Steam turbines. Velocity diagrams. Working performance and operation. Governing of steam turbines. Steam condensers, economizers and superheaters.

Two-stroke and four-stroke I.C. engines. Compression ignition and spark-ignition. Turbo engines for stationary application. Testing of internal combustion and turbo engines.

Properties of fuels. Combustion calculations. Analysis of products of combustion.

Heat transfer through conduction. One-dimensional steady-state conduction through plane-walls and cylinders. Critical thickness. Heat conducting properties of electrical insulating materials. Heat transfer by convection. Free and forced convection. Heat transfer during boiling and condensation. Heat transfer by radiation.

Refrigeration and heat-pump cycles. Vapour compression systems. Multiple compression and multiple evaporation systems. Refrigeration equipment. Control devices. Properties of refrigerants.

Air conditioning. Psychrometrics and psychrometric charts. Comfort indices and charts. Ventilation requirements. Cooling and dehumidification methods. Industrial air conditioning processes. Estimation of cooling and heating loads and calculation of supply air. Fan and coil selection. Air conditioning plant layout. Air conditioning controls.

30. RADIO COMMUNICATION ENGINEERING

Spectra of periodic and non-periodic signals. Transmission through linear networks. Filter transfer functions. Response of idealized networks.

Random signals. Probability and probability density functions. Correlation functions. Spectral density. Types of noise. Noise figure and noise temperature. Equivalent noise bandwidth. Measure of information. Entropy. Channel capacity and channel efficiency.

Analogue modulation systems. Generation and detection of amplitude modulated (double side band, double side band suppressed carrier, single side band), phase-modulated and frequency-modulated signals. Pulse modulation systems. Sampling theorem. Generation and detection of pulse-amplitude modulated, pulse-position modulated and pulse-code modulated signals. Comparison of modulation systems. Signal to noise ratio improvement.

Sound and vision broadcast transmitting and receiving systems. Frequency stability. High and low level modulation. Problems of cooling. Antennas and feeders. Typical receiver circuits. Diversity reception. Characteristics of studios for recording sound and, sound and vision broadcast programmes.

31. LINE COMMUNICATION ENGINEERING

Telegraph instruments. Polarised relays. Star-Stop telegraphy. Telegraph speed and distortion. Tele-printer margin. FSK voice frequency telegraphy. Telex. Message-switching.

Telephone instruments, subscriber's handset and dial. Transmission bridges. Telephone relays and switches. Principles of Local and Central Battery exchanges. Direct control and common control automatic switching systems. Traffic and trunking theory.

Transmission line equations. Characteristic impedance and propagation constant. Attenuation and delay distortion. Return loss. Loading of cables.

Attenuators. Prototype and m-derived filters. Attenuation and delay equalisers.

Far-end and near-end crosstalk. Indirect crosstalk. Crosstalk control. Thermal intermodulation and interference noise figure. Nonlinear distortion and overload. Quantization noise.

Frequency division and time division multiplexing. Hybrid coil. Singing and echo. Echo suppressors. Gain control. Multichannel openwire and cable carrier systems. PCM systems.

Bandwidth requirements and error rates of on-off keying, frequency shift keying and phase-shift keying. Coherent detection. Intersymbol interference.

Testing of lines. Transmission and noise measurements on lines and channels.

32. ELECTROMAGNETIC THEORY AND ITS APPLICATIONS

Electric field intensity potential and displacement. Laplace and Poisson equations. Magnetic induction, vector potential and field intensity. Energy and forces in electrostatic and magnetostatic fields. Boundary conditions and solution of boundary value problems.

Electromagnetic induction, displacement current and Maxwell's equations.

Wave equation, its derivation and general solutions. Plane waves in unbounded media. Reflection and refraction of plane waves at a plane interface. Surface waves.

Electromagnetic waves in guided media. Co-axial lines, strip lines, surface wave lines and wave guides. Cavity resonators, microwave filters and transmission circuits.

Radiation from an oscillating electric dipole. Radiation pattern, gain and radiation resistance. Typical antenna systems.

Ground and space waves. Propagation of ground waves. Tropospheric propagation. Duct mode of propagation. Ionospheric propagation. Prediction of usable frequencies for radio communication. Propagation of electromagnetic waves between earth stations and satellites. Propagation calculations for the design of communication systems.

33. ELECTRONIC DEVICES AND CIRCUITS

Atomic structure. Electron transport in semi-conductors. Thermionic emission. Secondary, photo and field emission. Gas discharge phenomena.

Construction, operating principles and characteristics of pn junction, Zener and photo diodes, bipolar and field-effect transistors, silicon controlled rectifiers and pn pn transistors.

Construction, operating principles and uses of high power vacuum tubes, cathode ray and picture tubes, gas filled tubes and UHF tubes.

Wave-electron interaction. Construction, operating principles and characteristics of velocity-modulated and cross-field microwave devices.

Single and multistage, audio, video and radio small-signal and large-signal transistor amplifiers; their design. Feedback amplifiers and operational amplifiers. Design of vacuum tube power amplifiers.

Oscillators, modulators and detectors, their operating principles, performance characteristics and design. Rectifiers and regulated power supplies. Electronic converters.

Digital and pulse circuits. Limitations of devices in pulse mode of operation. Differentiators, integrators, clippers and clampers. Multivibrators, their operation and design. Voltage and current time base generators. Logic gates. Counters and registers.

34. ELECTRICAL TECHNOLOGY

D. C. Machines : E.M.F. and torque equations. Methods of excitation. Characteristics and applications of shunt, series and compound generators. Parallel operation. Torque-load characteristics and applications of series, shunt and compound motors. Starters. Methods of speed control. Experimental determination of efficiency by different methods.

Transformers : Phasor diagram. Equivalent circuit. Regulation and efficiency. Parallel operation of transformers. 3-phase connections. Scott connection. Testing of transformers. Auto-transformer.

Synchronous Machines : E.M.F. equation. Two-reaction theory. Phasor diagram. Methods of determination of regulation. Synchronising. Parallel operation of alternators. Characteristics of synchronous motors. Circle diagram. Vector curves. Hunting. Starting methods. Synchronous condensers.

Induction Machines: Theory of operation. Phasor diagram. Equivalent circuit. Slip-torque characteristic. Effect of rotor resistance. Circle diagram. Starting methods. Double cage motor. Synchronous-induction motor. Induction generator. Single-phase induction motor and starting methods. Induction regulator.

Industrial drives : Choice of electric motors for various industrial drives and estimation of their rating. Speed control schemes of the conventional type as well as of the feedback type using magnetic amplifiers, rotating amplifiers and thyristors.

APPENDIX II

REGULATIONS RELATING TO THE PHYSICAL EXAMINATION OF CANDIDATES

[These regulations are published for the convenience of candidates and in order to enable them to ascertain the probability of their coming up to the required physical standard. The regulations are also intended to provide guide lines to the medical examiners and a candidate who does not satisfy the minimum requirements prescribed in the regulations, cannot be declared fit by the medical examiners. However, while holding that a candidate is not fit according to the norms laid down in these regulations, it would be permissible for a Medical Board to recommend to the Government of India for reasons specifically recorded in writing that he may be admitted to service without disadvantage to Government.

2. It should, however, be clearly understood that the Government of India reserve to themselves, absolute discretion to reject or accept any candidate after considering the report of the Medical Board.]

1. To be passed as fit for appointment a candidate must be in good mental and bodily health and free from any physical defect likely to interfere with the efficient performance of the duties of his appointment.

2. (a) In the matter of the correlation of age, height and chest girth of candidates of Indian (including Anglo-Indian) race, it is left to Medical Board to use whatever correlation figures are considered most suitable as a guide in the examination of the candidates. If there be any disproportion with regard to height weight, and chest girth, the candidates should be hospitalised for investigation and X-ray of the chest taken before the candidate is declared fit or not by the Board.

(b) However, for certain Services the minimum standards for height and chest girth, without which candidates cannot be accepted, are as follows :—

Name of Service	Height	Chest girth fully expanded	Expansion
Railway Engineering Services, (Civil, Electrical Mechanical and Signal) and Central Engineering Service Class I and Central Electrical Engineering Service Class I in the C.P.W.D.			
(a) For Male candidates	152 cm.	84 cm.	5 cm.
(b) For Female candidates	150 cm.	79 cm.	5 cm.

The minimum height prescribed is relaxable in case of candidates belonging to races such as Gorkhas, Garhwalis, Assamese, Nagaland Tribals, etc., whose average height is distinctly lower.

(c) For the Military Engineer Services, Class I and the Indian Ordnance Factories Service, Class I, a minimum expansion of 5 centimetres will be required in the matter of measurement of the chest.

3. The candidate's height will be measured as follows :—

He will remove his shoes and be placed against the standard with his feet together and the weight thrown on the heels and not on the toes or other sides of the feet. He will stand erect without rigidity and with the heels, calves, buttocks and shoulders touching the standard, the chin will be depressed to bring the vertex of the head level under the horizontal bar and the height will be recorded in centimetres and parts of a centimetre to halves.

4. The candidate's chest will be measured as follows :—

He will be made to stand erect with his feet together and to raise his arms over his head. The tape will be so adjusted round the chest that its upper edge touches the inferior angles of the shoulder blades behind and lies in the same horizontal plane when the tape is taken round the chest. The arms will then be lowered to hang loosely by the side, and care will be taken that the shoulders are not thrown upwards or backwards so as to displace the tape. The candidate will then be directed to take a deep inspiration several times and the maximum expansion of the chest will be carefully noted, and the minimum and maximum will then be recorded in centimetres, 84—89, 86—93.5 etc. In recording the measurements, fractions of less than half a centimetre should not be noted.

N.B.—The height and chest of the candidate should be measured twice before coming to a final decision.

5. The candidate will also be weighed and his weight recorded in kilograms—fractions of half a kilogram should not be noted.

6. The candidate's eye-sight will be tested in accordance with the following rules. The result of each test will be recorded :—

- (i) *General*.—The candidate's eyes will be submitted to a general examination directed to the detection of any disease or abnormality. The candidate will be rejected if he suffers from any morbid conditions of eyes, eyelids or contiguous structure of such a sort as to render or are likely at future date to render him unfit for service.
- (ii) *Visual Acuity*.—The examination for determining the acuteness of vision includes two tests one for distant, the other for near vision. Each eye will be examined separately.

There shall be no limit for minimum naked eye vision but the naked eye vision of the candidates shall, however, be recorded by the Medical Board or other medical authority in every case as it will furnish the basic information in regard to the condition of the eye.

The standards for distant and near vision with or without glasses shall be as follows :—

Services	Distant Vision		Near Vision	
	Better eye (Corrected)	Worse eye Vision	Better eye (Corrected)	Worse eye Vision
1	2	3	4	5

A. Technical

1. Railway Engineering Services, (Civil, Electrical, Mechanical and Signal) Class I, Central Electrical Engineering Service Class I, Central Water Engineering Service (Class I), Central Power Engineering Service (Class I), Central (Engineering Service (Roads), Class I and Telegraph En-
2. Central Engineering Service Class I, Central Electrical Engineering Service Class I, Indian Inspection Service, Class I, Central (Engineering Service (Roads), Class I and Telegraph En-

Class I, Central Water Engineering Service (Class I), Central Power Engineering Service (Class I), Central (Engineering Service (Roads), Class I and Telegraph En-	6/6] or 6/9	6/12 6/9	J.I.	J.II
--	----------------	-------------	------	------

1	2	3	4	5
gineering Ser- vice Class I.				
Assistant Exec- utive Engi- neer (Civil & Electrical) Class I (P & T Civil Engine- ering Wing), Assistant En- gineer (Civil & Electrical) Class II (P & T Civil Engi- neering Wing).				
3. Military Engi- neering Ser- vices, (Class I), and Indian Ordnance Fact- ories Service, Class I and post of Assis- tant Manager (Factories) Class I P&T Telecom Fac- tories organi- sations.]	6/6 or 6/9	6/18 6/9	J.I	J.II
B. Non-Technical				
4. Indian Rail- way Stores Service, Tele- graph Traffic Service, Class II, Indian Supply Service, Class I; Assis- tant Drilling Engineer Class I and Mechanical Engineer (Jr.) Class I in the Geological Survey of India.	6/9	6/12	J.I	J.II

NOTE : (1)

(a) In respect of the Technical Services mentioned at A above, the total amount of Myopia (including the cylinder) shall not exceed —4.00 D. Total amount of Hypermetropia (including the cylinder) shall not exceed +4.00 D.

(b) In every case of myopia, fundus examination should be carried out and the results recorded. In the event of any pathological condition being present which is likely to be progressive and affect the efficiency of the candidate, he shall be declared unfit.

NOTE : (2)

The testing of colour vision shall be essential in respect of the Technical Services mentioned at A above except the Telegraph Engineering Service, Class I; and the post of Assistant Development Officer (Engineering) Class I.

Colour perception should be graded into a higher and lower grade depending upon the size of aperture in the lantern as described in the table below :—

Grade	Higher grade of colour percep- tion	Lower grade of colour percep- tion
1. Distance between the lamp and the candidate	16'	16'
2. Size of aperture	1.3 mm	[13mm]
3. Time of exposure	5 seconds	5 seconds

For the Railway Engineering Services (Civil, Electrical, Signal and Mechanical) and other Services connected with the safety of the public, higher grade of colour vision is essential but for others lower grade of colour vision should be considered sufficient.

Satisfactory colour vision constitutes recognition of signal red, green and white colours with ease and without hesitation. Both the Ishihara's plates and Edridges Green lantern shall be used for testing colour vision.

NOTE (3) Field of vision.—The field of vision shall be tested in respect of all Services by the confrontation method. Where such test gives unsatisfactory or doubtful results the field of vision should be determined on the perimeter.

NOTE (4) Night Blindness.—Night blindness need not be tested as a routine, but only in special cases. No standard test for the testing of night blindness or dark adaptation is prescribed. The Medical Board should be given the discretion to improvise such rough tests e.g., recording of visual acuity with reduced illumination or by making the candidate recognise various objects in a darkened room after he has been there for 20 to 30 minutes. Candidates's own statements should not always be relied upon, but they should be given due consideration.

NOTE (5) For Central Engineering Services, the candidates may be required to pass the colour vision test and undergo tests for night blindness when considered necessary by the Medical Board.

NOTE (6) Ocular conditions, other than visual acuity.—

(a) Any organic disease or a progressive refractive error which is likely to result in lowering the visual acuity should be considered as a disqualification.

(b) Squint.—For Technical Services mentioned at A above where the presence of binocular vision is essential, squint, even if the visual acuity is of the prescribed standard, should be considered as a disqualification. For other Services, the presence of squint should not be considered as a disqualification, if the visual acuity is of the prescribed standard.

(c) If a person has one eye or if he has one eye which has normal vision and the other eye is amblyopic or has sub-normal vision, the usual effect be that the person lacks stereoscopic vision for perception of depth. Such vision is not necessary for many civil posts. The medical board may recommend as fit, such persons provided the normal eye has,

(i) 6/6 distant vision and J1 near vision with or without glasses, provided the error in any meridian is not more than 4 dioptres for distant vision;

(ii) has full field of vision;

(iii) normal colour vision wherever required.

Provided the board is satisfied that the candidate can perform all the functions for the particular job in question.

The above relaxed standard of visual acuity will NOT apply to candidates for posts/Services classified as 'TECHNICAL'.

NOTE (7) Contact Lenses.—During the medical examination of a candidate, the use of contact lenses is not to be allowed.

NOTE (8). It is necessary that when conducting eye test, the illumination of the type letters for distant vision should have an illumination of 15 foot-candles

NOTE (9). It shall be open to Government to relax any one of the conditions in favour of any candidate for special reasons

7. Blood Pressure.

The Board will use its discretion regarding Blood Pressure. A rough method of calculating normal maximum systolic pressure is as follows :—

- (i) With young subjects 15—25 years of age the average is about 100 plus the age.
- (ii) With subjects over 25 years of age the general rule of 110 plus half the age seems quite satisfactory.

N.E.—As a general rule any systolic pressure over 140 mm. and diastolic over 90 mm. should be regarded as suspicious and the candidate should be hospitalised by the Board before giving their final opinion regarding the candidate's fitness or otherwise. The hospitalisation report should indicate whether the rise in blood pressure is of a transient nature due to excitement etc. or whether it is due to any organic disease. In all such cases X-Ray and electrocardiographic examinations of heart and blood urea clearance test should also be done as a routine. The final decision as to the fitness or otherwise of a candidate will, however, rest with the Medical Board only.

Method of taking Blood Pressure

The mercury manometer type of instrument should be used as a rule. The measurement should not be taken within fifteen minutes of any exercise or excitement. Provided the patient and particularly his arm is relaxed, he may be either lying or sitting. The arm is supported comfortably at the patient's side in a more or less horizontal position. The arm should be freed from clothes to the shoulder. The cuff completely deflated, should be applied with the middle of the rubber over the inner side of the arm, and its lower edge an inch or two above the bend of the elbow. The following turns of cloth bandage should spread evenly over the bag to avoid bulging during inflation.

The brachial artery is located by palpitation at the bend of the elbow and the stethoscope is then applied lightly and centrally over it below, but not in contact with the cuff. The cuff is inflated to about 200 m.m. Hg. and then slowly deflated. The level at which the column stands when soft successive sounds are heard represents the Systolic Pressure. When more air is allowed to escape the sounds will be heard to increase in intensity. The level at which the well-heard clear sound's change to soft muffled fading sounds represents the diastolic pressure. The measurements should be taken in a fairly brief period of time as prolonged pressure of the cuff is irritating to the patient and will vitiate the readings. Re-checking, if necessary, should be done only a few minutes after complete deflation of the cuff. (Sometimes, as the cuff is deflated sounds are heard at a certain level, they may disappear as pressure falls and reappear at a still lower level. This 'Silent Gap' may cause error in reading).

8. The urine (passed in the presence of the examiner) should be examined and the results recorded. Where a Medical Board finds sugar present in a candidate's urine by the usual chemical tests, the Board will proceed with the examination with all its other aspects and will also specially note any signs or symptoms suggestive of diabetes. If, except for the glycosuria the Board finds the candidate conforms to the standard of medical fitness required they may pass the candidate "fit subject to the Glycosuria being non-diabetic" and the Board will refer the case to a specified specialist in Medicine who has hospital and laboratory facilities at his disposal. The Medical Specialist will carry out whatever examinations, clinical and laboratory, he considers necessary including a standard blood sugar tolerance test and will submit his opinion to the Medical Board upon which the Medical Board will base its final opinion "fit" or "unfit". The candidate will not be required to appear in person before the Board on the second occasion. To exclude the effects of medication it may be necessary to retain a candidate for several days in hospital, under strict supervision.

8.(a) A woman candidate who as a result of tests is found to be pregnant of 12 weeks standing or over, should be declared temporarily unfit until the confinement is over. She should be re-examined for a fitness certificate six weeks after the date of confinement, subject to the production of a medical certificate of fitness from a registered medical practitioner.

9. The following additional points should be observed :—

(a) that the candidate's hearing in each ear is good and that there is no sign of disease of the ear. In case it is defective the candidate should be got examined by the ear specialist : provided that if the defect in hearing is remediable by operation or by use of a hearing aid, a candidate cannot be declared unfit on that account provided he/she has no progressive disease in the ear. This provision is not applicable in the case of Railway Services, other than Indian Railway Stores Service, the Military Engineer Services, the Telegraph Engineering Service, Class I and the Telegraph Traffic Service, Class II. The following are the guidelines for the medical examining authority in this regard :—

1. Marked or total deafness in one ear, other ear being normal.	Fit for non-technical jobs if the deafness is upto 30 decibel in higher frequency.
(2) Perceptive deafness in both ears in which some improvement is possible by a hearing aid.	Fit in respect of both technical and non-technical jobs if the deafness is upto 30 Decibel in speech frequencies of 1000 to 4000.
(3) Perforation of tympanic membrane of Central or marginal type.	<p>(i) One ear normal other ear perforation of tympanic membrane present—Temporarily unfit.</p> <p>Under improved conditions of Ear Surgery a candidate with marginal or other perforation in both ears should be given a chance by declaring him temporarily unfit and then he may be considered under 4(ii) below.</p>
	(ii) Marginal or attic perforation in both ears—Unfit.
	(iii) Central perforation both ears—Temporarily unfit.
(4) Ears with mastoid cavity subnormal hearing on one side/on both sides.	<p>(i) Either ear normal hearing other ear Mastoid cavity—Fit for both technical and non-technical jobs,</p> <p>(ii) Mastoid cavity of both sides. Unfit for technical jobs. Fit for non-technical jobs if hearing improves to 30 Decibels in either ear with or without hearing aid.</p>
(5) Persistently discharging ear-operated/unoperated.	Temporarily Unfit for both technical and non-technical jobs.
(6) Chronic inflammatory/allergic conditions of nose with or without bony deformities of nasal septum.	<p>(i) A decision will be taken as per circumstances of individual cases.</p> <p>(ii) If deviated nasal Septum is present with symptoms Temporarily unfit.</p>
(7) Chronic inflammatory conditions of tonsils and/or Larynx.	<p>(i) Chronic inflammatory conditions of tonsils and/or Larynx—Fit.</p> <p>(ii) Hoarseness of voice of severe degree if present then—Temporarily Unfit.</p>
(8) Benign or locally malignant tumours of the E.N.T.	<p>(i) Benign tumours—Temporarily unfit.</p> <p>(ii) Malignant Tumours—Unfit.</p>
(9) Otosclerosis	If the hearing is within 30 Decibels after operation or with the help of hearing aid—Fit.

(10) Congenital defects of ear, nose or throat; (i) If not interfering with functions—Fit.
(ii) Stuttering of severe degree—Unfit.

11) Nasal Poly. Temporarily Unfit.

(b) that his/her speech is without impediment.

(c) that his/her teeth are in good order and that he/she is provided with dentures where necessary for effective mastication (well filled teeth will be considered as sound);

(d) that the chest is well formed and his chest expansion sufficient; and that his heart and lungs are sound;

(e) that there is no evidence of any abdominal disease;

(f) that he is not ruptured;

(g) that he does not suffer from hydrocele, a severe degree of varicocele, varicose veins or piles;

(h) that his limbs, hands and feet are well formed and developed and that there is free and perfect motion of all his joints;

(i) that he does not suffer from any inveterate skin disease;

(j) that there is no congenital malformation or defect;

(k) that he does not bear traces of acute or chronic disease pointing to an impaired constitution;

(l) that he bears marks of efficient vaccination;

(m) that he is free from communicable disease.

10. Radiographic examination of the chest should be done as a routine in all cases for detecting any abnormality of the heart and lungs which may not be apparent by ordinary physical examination.

When any defect is found it must be noted in the Certificate and the medical examiner should state his opinion whether or not it is likely to interfere with the efficient performance of the duties which will be required of the candidate.

NOTE.—Candidates are warned that there is no right of appeal from a Medical Board, special or standing, appointed to determine their fitness for the above Services. If, however, Government are satisfied on the evidence produced before them of the possibility of an error of judgment in the decision of the first Board, it is open to Government to allow an appeal to a second Board. Such evidence should be submitted within one month of the date of the communication in which the decision of the first Medical Board is communicated to the candidate, otherwise no request for an appeal to a second Medical Board will be considered.

If any medical certificate is produced by a candidate as a piece of evidence about the possibility of an error or judgement in the decision of the first Board, the certificate will not be taken into consideration unless it contains a note by the medical practitioner concerned to the effect that it has been given in full knowledge of the fact that the candidate has already been rejected as unfit for service by the Medical Board.

Medical Boards Report

The following intimation is made for the guidance of the Medical Examiner:—

1. The standard of physical fitness to be adopted should make due allowance for the age and length of service, if any of the candidate concerned.

No person will be deemed qualified for admission to the Public Service who shall not satisfy Government or the appointing authority as the case may be, that he has no disease constitutional affection or bodily infirmity unfiting him or likely to unfit him for that service.

It should be understood that the question of fitness involves the future as well as the present and that one of the main objects of medical examination is to secure continuous effective service and in the case of candidates for permanent appointment to prevent early pension or payments, in case of premature death. It is at the same time to be noted that the question is one of the likelihood of continuous effective service, and that rejection of a candidate need not be advised on account of the presence of a defect which in only a small proportion of cases is found to interfere with continuous effective service.

A lady doctor will be co-opted as a member of the Medical Board whenever a woman candidate is to be examined.

The report of the Medical Board should be treated as confidential.

In cases where a candidate is declared unfit for appointment in the Government service the grounds for rejection may be communicated to the candidate in broad terms without giving minute details regarding the defects pointed out by the Medical Board.

In cases where a Medical Board considers that a minor disability disqualifying a candidate for Government service can be cured by treatment (medical or surgical) a statement to that effect should be recorded by the Medical Board. There is no objection to a candidate being informed of the Board's opinion to this effect by the appointing authority and when a cure has been effected it will be open to the authority concerned to ask for another Medical Board.

In the case of candidates who are to be declared 'Temporarily Unfit' the period specified for re-examination should not ordinarily exceed six months at the maximum. On re-examination after the specified period these candidates should not be declared temporarily unfit for a further period but a final decision in regard to their fitness for appointment or otherwise should be given.

(a) Candidate's statement and declaration

The candidate must make the Statement required below prior to his Medical Examination and must sign the Declaration appended thereto. His attention is specially directed to the warning contained in the Note below:—

1. State your name in full (block letters)
.
.
.
2. State your age and birth place
.
.
.

2. (a) Do you belong to races such as Gorkhas, Garhwalis, Assamese, Nagaland Tribals etc. whose average height is distinctly lower? Answer 'Yes' or 'No', and if the answer is 'Yes', state the name of the race.

3. (a) Have you ever had small-pox, intermittent or any other fever, enlargement or suppuration of glands, spitting of blood, asthma, heart disease, lung disease, fainting attacks, rheumatism, appendicitis,

(b) any other disease or accident requiring confinement to bed and medical or surgical treatment?

11. Result of the Medical Board's examination. If communicated to you or if known.....

4. When were you last vaccinated?

I declare all the above answers to be to the best of my belief, true and correct.

5. Have you suffered from any form of nervousness due to over-work or any other cause?

Candidate's Signature.....

Signed in my presence

Signature of Chairman of the Board

6. Furnish the following particulars concerning your family :—

NOTE.—The candidate will be held responsible for the accuracy of the above statement. By wilfully suppressing any information he will incur the risk of losing the appointment and, if appointed, of forfeiting all claim to Superannuation Allowance or gratuity.

Father's age if living and state of health	Father's age at death and cause of death	No. of brothers living their ages and state of health	No. of brothers dead. their ages at and cause of death
(1)	(2)	(3)	(4)

The figure consists of seven horizontal black lines, each featuring a series of small black dots spaced at regular intervals along its length. These dots represent discrete samples of a continuous signal. The lines are evenly spaced vertically, and the dots are consistently sized and spaced across all lines.

Mother's age if living	Mother's age at death	No. of sisters living, their ages and state of health	No. of sisters dead, their ages at death and cause of death
state of health	cause of death		

Acuity of vision	Naked eye	With glasses	Strength of glasses		
			Sph.	Cyl.	Axis.
Distant Vision		R.E. L.E.			
Near Vision		R.E. L.E.			
Hypermetropia (Manifest)		R.E. L.E.			

7. Have you been examined by a Medical Board before?

4. Ears : Inspection..... Hearing, Right Ear
..... left ear

8. If answer to the above is yes, please state what Service/Services you were examined for?

7. Respiratory System : Does physical examination reveal anything abnormal in the respiratory organs.

9. Who was the examining authority?

anything abnormal in the respiratory organs.

10. When and where was the Medical Board held?

If yes, explain fully.

8. Circulatory system :

- (a) Heart : Any organic lesions ?
- Rate Standing
- After hopping 25 times.....
- Two minutes after hopping.....
- (b) Blood Pressure : Systolic.....
- Diastolic

9. Abdomen : Girth.....Tenderness.....

Hernia.....

- (a) Palpable : Liver.....Spleen.....
-Kidneys
-Tumour.....
- (b) Haemorrhoids.....Fistula.....

10. Nervous System : Indications of nervous or mental disabilities.....

11. Loco-Motor System; Any abnormality

12. Genito Urinary System : Any evidence of Hydrocele, Varicocele, etc. Urine analysis :

- (a) Physical appearance.....(b) Sp. Gr.
- (c) Albumen.....
- (d) Sugar
- (e) Casts.....
- (f) Cells.....

13. Report of X-Ray Examination of Chest

14. Is there anything in the health of the candidate likely to render him unfit for the efficient discharge of his duties in the Service for which he is a candidate.

NOTE.—In the case of a female candidate, if it is found that she is pregnant of 12 weeks standing or over, she should be declared temporarily unfit, *vide* Regulation 8(a).

15. For which Services has the candidate been examined and found in all respects qualified for the efficient and continuous discharge of his duties and for which of them is he considered unfit ?

Is the candidate fit for Field Service ?

NOTE.—The Board should record their findings under one of the following three categories :

- (i) Fit.....
- (ii) Unfit on account of
- (iii) Temporarily unfit on account of

President.....

Member

Place.....

Date.....

APPENDIX III

BRIEF PARTICULARS RELATING TO THE SERVICES/ POSTS, TO WHICH RECRUITMENT IS BEING MADE ON THE RESULTS OF THIS EXAMINATION

1. Indian Railway Service of Engineers, Indian Railway Service of Electrical Engineers, Indian Railway Service of Signal Engineers, Indian Railway Service of Mechanical Engineers and Indian Railway Stores Service.

(1) Appointments will be on probation for a period of three years during which the services of the officers will be liable to termination by three months' notice on either side. Probationary Officers will be required to undergo practical training for the first two years. Those who complete this training successfully and are otherwise considered suitable will be placed in charge of a working post provided they have passed the prescribed departmental and other examinations. It must be noted that these examinations should, as a rule, be passed at the first chance and that save under exceptional circumstances, a second chance will not be allowed. Failure to pass any of the examinations may result in the termination of the service and will in any case involve stoppage of increments.

At the end of one year in a working post, the probationary officers will be required to pass a final examination, both practical and theoretical and will, as a rule, be confirmed if they are considered fit for appointment in all respects. In cases where the probationary period is extended for any reason, the drawal of the first and subsequent increments on their passing the departmental examinations, and on being confirmed, will be subject to the rules and orders in force from time to time.

If for any reasons not beyond his control, a probationer wishes to withdraw from training or probation, he will be liable to refund the whole cost of his training and any other moneys paid to him during the period of his probation.

NOTE (i).—The period of training and the period of probation against a working post may be modified at the discretion of Government. If the period of training is extended in any case due to the training not having been completed satisfactorily, the total period of probation will be correspondingly extended.

NOTE (ii).—Probationers will also have to undergo training at the Railway Staff College, Baroda. The test in the Staff College is compulsory and a second chance in the event of failure, will not be given except in exceptional circumstances and provided the record of the Officer is such that such a relaxation may be made. Failure to pass the test may involve the termination of service and in any case the officers will not be confirmed till they pass the tests, their period of training and/or probation being extended as necessary.

NOTE (iii).—In the Indian Railway Service of Signal Engineers on Railways where there are specialised Tele-Communications posts, an additional training for a period of six months in Tele-Communications may be arranged in any particular case.

(2) (a) Probationers will not be permitted to apply for appointment elsewhere or appear for examination or selection for recruitment to other services.

(b) In cases where Probationers have already appeared at the Combined Competitive Examinations prior to their allotment to the Railway Service and qualify for appointment to services other than the Railway Services, the question of their release from Railway Service will be considered only when they are prepared to refund in cash the cost of their training and other moneys paid to them during the period of their probation before they are actually relieved.

(3) Probationers should have already passed or should pass during the period of probation an examination in Hindi in the Dev Nagri script of an approved standard. This examination may be the "Praveen" Hindi Examination which is conducted by the Directorate of Education, Delhi Administration, or one of the equivalent Examinations recognised by the Central Government.

No probationary officer can be confirmed or his pay in the time scale raised to Rs. 450.00 per month unless he fulfils this requirement; and failure to do so will involve liability to termination of service. No exemption can be granted.

(4) Officers recruited under these rules—

- (a) will be eligible to pensionary benefits; and
- (b) shall subscribe to the State Railway (non-contributory) Provident Fund under the Rules of that Fund; as applicable to railway servants.

(5) Pay will commence from the date of joining service. Service for increments will also count from the same date. Particulars as to pay are contained in sub-para (8).

(6) Officers recruited under these rules shall be eligible for leave in accordance with the rules for the time being in force as applicable to officers of Indian Railways.

(7) Officers will ordinarily be employed throughout their service on the Railway to which they may be posted on first appointment and will have no claim, as a matter of right, to transfer to some other Railway. But the Government reserve the right to transfer such officers, in the exigencies of service, to any other Railway or project in or out of India. Officers appointed in the Railway Engineering Services (Civil, Electrical, Mechanical and Signal) will be liable to serve in the Indian Railway Stores Services if and when called upon to do so.

(8) The following are the rates of pay admissible:—

Junior Scale : Rs. 400—400—450—30—600—35
—670—EB—35—950.

Senior Scale : Rs. 700 (6th year and under)—
40—1,100—50/2—1,250.

Junior Administrative Grade : Rs. 1,300—60—
1,600.

Intermediate Administrative Grade : Rs. 1,600—
100—1,800.

Senior Administrative Grade :

Indian Railway Service of Engineers and Indian Railway Service of Mechanical Engineers—Rs.
2,000—100—2,500.

Indian Railway Service of Electrical Engineers,
Indian Railway Service of Signal Engineers and
Indian Railway Stores Service—Rs. 1,800—100—
2,000—125—2,250.

NOTE.—(1) Probationary officers will start on the minimum of the junior scale and will count their service for increment from the date of joining. They will, however, be required to pass any departmental examination or examinations that may be prescribed before their pay can be raised from Rs. 400.00 to Rs. 450.00 P.M. in the time scale.

Increments from Rs. 400.00 to Rs. 450.00 will not be granted if they fail to pass the Departmental examination within the first two years of the training and probationary period. In cases where the training period has to be extended for failing to pass all the Departmental Examinations within the stipulated period, on their passing the departmental examinations after expiry of the extended period of training their pay from the date following that on which the last examination ends, will be fixed at the stage in the time scale which they would have otherwise attained but no arrears of pay would be allowed to them. In such cases the date of future increments will not be affected.

The increments from Rs. 400.00 to Rs. 450.00 and from Rs. 450.00 to Rs. 480.00 may, however, be granted in advance during the period of probation, if the probationary officer passes the first and second departmental examinations respectively in accordance with extant instructions.

Note (ii).—The pay of a Government servant who held a permanent post other than a tenure post in a substantive capacity prior to his appointment as a probationer will be regulated subject to the provisions of Rule 2018A [F.R. 22-B(1)]—R.II.

(9) The increments will be given subject to sub-para to Note (i) under sub-para (8) above for approved service only, and in accordance with the rules of the Department.

(10) Any person appointed on the results of this competitive examination shall, if so required, be liable to serve in any Defence Service or post connected with the Defence of India for a period of not less than four years including the period spent on training if any :

Provided that such person :—

(a) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment.

(b) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.

(11) Promotions to the administrative grades are dependent on the occurrence of vacancies in the sanctioned establishment and are made wholly by selection, mere seniority does not confer any claim for such promotion.

(12) In all matters not specifically provided for herein, the probationary officers will be governed by the provisions of the Indian Railway Codes as amended from time to time and other orders in force issued by competent authorities.

2. Central Engineering Service, Class I and Central Electrical Engineering Service, Class I.

(a) The selected candidates will be appointed on probation for two years. They would be required to pass the prescribed departmental examinations during the period of probation. On satisfactory completion of their probation, they would be considered for confirmation or continuance in their appointment if permanent posts are available. Government may extend the period of probation of two years.

If on the expiration of the period of probation or of any extension thereof, Government are of opinion that the officer is not fit for permanent employment/retention or if at any time during such period of probation or extension, they are satisfied that the officer will not be fit for permanent appointment/retention on the expiration of such period or extension, they may discharge the officer or pass such order as they think fit.

(b) As things stand at present, all officers appointed to Central Engineering Services, Class I have a reasonable chance of promotion to the grade of Executive Engineer after completion of five years' service in the grade of Assistant Executive Engineer subject to the condition that they are otherwise found fit for such promotion.

(c) Any person appointed on the results of this competitive examination shall, if so required be liable to serve in any Defence Service or post connected with the Defence of India, for a period of not less than four years including the period spent on training if any :

Provided that such person :—

(i) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment:

(ii) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.

(d) The following are the rates of pay admissible:—

Central Engineering Service, Class I and Central Electrical Engineering Service, Class I :

Junior Scale : Rs. 400—400—450—30—600—35—670
—EB—35—950.

Senior Scale : Rs. 700—40—1,100—50/2—1,250.

Administrative (Selection) Posts :

Superintending Engineers : Rs. 1,300—60—1,600—100
—1,800.

Chief Engineers : Rs. 2,000 fixed.

Engineer-in-Chief : Rs. 2,500—125/2—2,750 (For Central Engineering Service, Class I only).

NOTE (1)—The pay of a Government servant who held a permanent post other than a tenure post in a substantive capacity prior to his appointment as a probationer will be regulated subject to the provisions of F.R. 22-B(I).

NOTE (2)—Normally no increments will be allowed during the period of probation. However, the officers appointed to Class I Engineering Services who clear the departmental examination during the period of probation are allowed to draw advance increment raising their pay to Rs. 450 p.m. from the date of passing the examinations.

3. Indian Inspection Service and Indian Supply Service :—

(a) Selected candidates will be appointed on probation for a period of two years. On completion of the period of probation the officers, if considered fit for permanent appointment, will be confirmed in their appointments subject to availability of permanent posts. The Government may extend the period of two years of probation.

If on the expiration of the period of probation or any extension thereof, the Government are of the opinion that an officer is not fit for permanent employment, or if at any time during such period of probation or extension thereof, they are satisfied that any officer will not be fit for permanent appointment on the expiration of such period or extension they may discharge the officer or pass such order as they think fit.

The officers will also be required to pass a prescribed test in Hindi before confirmation.

(b) Any person appointed on the results of this competitive examination shall, if so required, be liable to serve in any Defence Service or post connected with the Defence of India, for a period of not less than four years including the period spent on training if any :—

Provided that such person—

- (i) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment.
- (ii) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.

(c) The following are the rates of pay admissible.—

Grade II—Senior Class I Scale Rs. 700—40—1,100—50/2
—1,250.■

**Grade I—Administrative Selection Rs. 1,300—60—1,600—
Posts (with a Selection
Grade of Rs. 1,600—
100—1,800).**

Super time scale posts :

(i) Indian Supply Service	(a) Rs. 1,800—100— 2,000.
	(b) Rs. 2,000—125— 2,250.
	(c) Rs. 2,500—125/2— 2,750.
(ii) Indian Inspection Service	Rs. 1,800—100—2,000.

NOTE.—The pay of a Government servant who held a permanent post other than a tenure post in a substantive capacity prior to his appointment as a probationer will be regulated subject to the provisions of FR. 22-B(I).

4. Military Engineer Services, Class I :—

(a) The selected candidates will be appointed on probation for a period of two years. A probationer during his probationary period may be required to pass such departmental and language tests as Government may prescribe. If in the opinion of Government the work or conduct of an officer on probation is unsatisfactory or shows that he is unlikely to become efficient, or if the probationer fails to pass the prescribed tests during the period Government may discharge him. On the conclusion of the period of probation, Government may confirm the officer in his appointment or if his work or conduct has in the opinion of Government been unsatisfactory. Government may either discharge him or extend the period of probation for such further periods as Government may consider fit.

Probationers will also be required to pass a test in Hindi before confirmation.

- (i) The selected candidates shall, if so required, be liable to serve as Commissioned Officers in the Armed Forces for a period of not less than 4 years including the period spent on training if any, provided that such a candidate (i) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment; and (ii) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.
- (ii) The candidates shall also be subject to Civilians in Defence Services (Field Service Liability) Rules of 1957 published under S.R.O. No. 92, dated 9th March, 1957. They will be medically examined in accordance with the medical standards laid down therein.

(c) The following are the rates of pay admissible:

Assistant Executive Engineer	Rs.	400—400—450—30—
Assistant Surveyor of Works	Junior	600—35—670—EB.—
Assistant Technical Examiner	scale	35—950.
Executive Engineer	Rs.	700—40—1,100—50/2
Surveyor of Works		—1,250.
Technical Examiner		
Superintending Engineer	Rs.	1,300—60—1,600—
Superintending Surveyor of Works		100—1,800.
Superintending Technical Examiner		
Deputy Chief Engineer	Rs.	1,300—60—
		1,600—100—1,800
	plus	Rs. 100 as Special pay.
Chief Technical Examiner	Under	consideration
Chief Surveyor of Works	Rs.	1,800—100—2,000
Chief Engineer	Rs.	2,000 (Fixed)

5. Indian Ordnance Factories Service, Class I :—

(a) Selected candidates will be appointed as Assistant Managers (Probationers). The period of probation will be three years. The period of probation may be reduced or extended by the Government on the recommendation of the Director General, Ordnance Factories. An Assistant Manager (Probationer) will undergo such practical training as shall be provided by Government and may be required to pass such departmental and language tests as Government may prescribe. The language tests will include a test in Hindi.

On the conclusion of his period of probation, Government will confirm the officer in his appointment. If, however, during or at the end of the period of probation his work or conduct has in the opinion of Government been unsatisfactory Government may either discharge him or extend his period of probation for such period as Government may think fit.

(b) (i) Selected candidates shall, if so required, be liable to serve as Commissioned Officers in the Armed Forces for a period of not less than four years including the period spent on training if any; provided that such person (i) shall not be required to serve as aforesaid after the expiry of ten years

from the date of appointment and (ii) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.

(ii) The candidates shall also be subject to Civilians in Defence Services (Field Service Liability) Rules 1957, published under S.R.O. No. 92, dated 9th March, 1957. They will be medically examined in accordance with the medical standards laid down therein.

(c) The following are the rates of pay admissible :

		Rs.	
	Junior Scale:		
Assistant Staff Officer	Manager/Technical	400—400—450—30— 600—35—670—EB— 35—950.	
	Senior Scale:		
Deputy Manager/Deputy Assistant Director General, Ordnance Factories		.700—40—1,100— 50/2—1,250.	
Manager/Senior Deputy Assistant Director General, Ordnance Factories		1,100—50—1,400	
Deputy General Manager/General Manager, Grade II/Assistant Director General, Ordnance Factories Gr. II		1,300—60—1,600— 100—1,800.	
General Manager Grade I/Assistant Director General, Ordnance Factories Grade I		1,800—100—2,000	
General Manager (Selection Grade Deputy Director General, Ordnance Factories)		2,000—125—2,250.	
Additional Director General, Ordnance Factories		2,250—125—2,500.	
Director General, Ordnance Factories		3,250—Fixed.	

NOTE : The pay of a Government servant who held a permanent post other than a tenure post in a substantive capacity prior to his appointment as a probationer will be regulated subject to the provision of Ministry of Defence O.M. No. 15(6)/64/D(Appts)/1051/D(Civ-1) dated the 25th November 1965 as amended from time to time.

6. Telegraph Engineering Services, Class I :—

(a) Appointments will be made on probation for a period of two years. If in the opinion of Government, the work or conduct of an officer on probation is unsatisfactory, or shows that he is unlikely to become efficient, Government may discharge him forthwith. On the conclusion of his period of probation, Government may confirm the officer in his appointment if permanent vacancies are available or if his work or conduct has in the opinion of the Government been unsatisfactory Government may either discharge him from the service or may extend his period of probation for such further period as the Government may think fit.

Officers will be required to pass any departmental examination or examinations, that may be prescribed during the period of probation. They will also be required to pass a test in Hindi before confirmation.

(b) Officers will also be required to pass professional and language tests.

(c) Any person appointed on the results of this competitive examination shall, if so required, be liable to serve in any Defence Service or post connected with the Defence of India, for a period of not less than four years including the period spent on training, if any :—

461GI/73

Provided that such person—

(i) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment;

(ii) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.

(d) The following are the rates of pay admissible :—

Junior Scale : Rs. 400—400—450—30—600—35—
670—EB—35—950.

Senior Scale : Rs. 700—40—1,100—50/2—1,250.

Junior Administrative Grade : 1,300—60—1,600.

Senior Administrative Grade : Rs. 1,800—100—2,000—
125—2,225.

Members (P & T Board) : Rs. 2,500—125/2—2,750.

Senior Member (P & T Board) . Rs. 3,000.

NOTE.—The pay of a Government Servant who held a permanent post other than a tenure post in a substantive capacity prior to his appointment as a probationer will be regulated subject to the provision of F.R. 22-B(I).

In case the substantive pay is or exceeds Rs. 510 an officer in the Junior Scale of TES Class I will not draw any increment till he passes the departmental examination.

7. Central Water Engineering (Class I) Service and Central Power Engineering (Class I) Service :—

(i) Persons recruited to the post of Assistant Director/Assistant Executive Engineer/Research Officer in the Central Water and Power Commission shall be on probation for a period of two years;

Provided that the Government may, where necessary, extend the said period of two years for a further period not exceeding one year.

If on the expiration of the period of probation referred to above or any extension thereof as the case may be, the Government are of the opinion that a candidate is not fit for permanent appointment or if at any time during such period of probation or extension they are satisfied that he will not be fit for permanent appointment on the expiration of such period of probation or extension, they may discharge or revert him to his substantive post or pass such order as they think fit.

During the period of probation, the candidates may be required by the Government to undergo such course of training and instructions and to pass such examination and tests as it may think fit, as a condition to satisfactory completion of probation.

(ii) Any person appointed on the results of this competitive examination shall, if so required, be liable to serve in any Defence Service or post connected with the Defence of India for a period of not less than four years including the period spent on training, if any;

Provided that such person :—

(i) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment;

(ii) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.

(iii) The officers appointed to the posts of Assistant Director/Assistant Executive Engineer/Research Officer can look forward to promotion to higher grades of Deputy Director/Executive Engineer/Superintending Engineer/Director (Ordinary Grade)/Director/Superintending Engineers (Selection Grade)/Deputy Chief Engineer and Chief Engineer after fulfilling the prescribed conditions.

The scales of pay for Class I Engineering posts in Central Water and Power Commission are as follows :—

(Civil and Mechanical Posts in the Water Wing)

	Rs.
1. Assistant Director/Assistant Executive Engineer/Research Officer	400—400—450—30— 600—35—670—EB— 35—950.
2. Deputy Director/Executive Engineer	700—40—1,100— 50/2—1,250.
3. Superintending Engineer/Director (Ordinary Grade)	1,300—60—1,600— 100—1,800.
4. Director Selection Grade, Superintending Engineer (Selection Grade)	1,800—100—2,000
5. Chief Engineer	2,000 (Fixed)

(Electrical and Mechanical Posts in the Power Wing)

	Rs.
1. Assistant Director/Assistant Executive Engineer/Research Officer	400—400—450—30— 600—35—670—EB— 35—950.
2. Deputy Director/Executive Engineer	700—40—1,100—50/2— 1,250.
3. Superintending Engineer/Director (Ordinary Grade)	1,300—60—1,600— 100—1,800.
4. Director (Selection Grade)	1,800—100—2,000
5. Deputy Chief Engineer	1,800—100—2,000
6. Chief Engineer	2,000 (Fixed)

8. *Central Engineering Service (Roads) Class I* :—

(a) The selected candidates will be appointed as Assistant Executive Engineer on probation for two years. On the completion of the period of probation, if any, are considered fit for permanent appointment, they will be confirmed as Assistant Executive Engineer if permanent vacancies are available. The Government may extend the period of probation of two years.

If on the expiration of the period of probation or of any extension thereof, Government are of the opinion that an Assistant Executive Engineer is not fit for permanent employment or if at any time during such period of probation or extension they are satisfied that an Assistant Executive Engineer will not be fit for permanent appointment on the expiration of such periods or extension, they may discharge the Assistant Executive Engineer or pass such orders as they think fit.

The officers will also be required to pass a test in Hindi before confirmation.

(b) Any person appointed on the results of this competitive examination shall, if so required, be liable to serve in any Defence Service or post connected with the Defence of India, for a period of not less than four years including the period spent on training, if any;

Provided that such person—

- (i) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment;
- (ii) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years;

(c) The following are the rates of pay admissible;

Junior Class I posts (Assistant Executive Engineer) :—
Rs. 400—400—450—30—600—35—670—EB—35—
950.

Senior Class I (Selection) Posts (Executive Engineer) :—
Rs. 700—40—1,100—50/2—1,250.

Administrative (Selection) Class I Posts : Superintending Engineer (Roads) :—Rs. 1,300—60—1,600—
100—1,800.

Superintending Engineer (Bridges) :—Rs. 1,300—60—
1,600—100—1,800.

Superintending Engineer (Mechanical) :—Rs. 1,300—
60—1,600—100—1,800.

Higher Administrative (Selection) Class I Posts :—

Chief Engineer (Roads) —Rs. 2,000 (fixed).

Chief Engineer (Bridges) :—Rs. 2,000 (fixed).

Chief Engineer (Mechanical) :—Rs. 2,000 (fixed).

Additional Director General (Road) :—Rs. 2,500 (fixed).

Additional Director General (Bridges) :—Rs. 2,500 (fixed).

Director General (Roads Development)—Rs. 3,000 (fixed)

NOTE.—The pay of Government Servant, who held a permanent post other than a tenure post in a substantive capacity prior to his appointment as a probationer in the Central Engineering Services, Class I/Class II will be regulated subject to the provision of F.R. 22-B(I).

9. Post of Assistant Development Officer (Engineering) in the Directorate General of Technical Development :—

(a) Persons recruited to the post of Assistant Development Officer (Engineering) in the Directorate General of Technical Development will be on probation for a period of two years.

(b) The scale of pay of this Class I (Gazetted) post is Rs. 400—400—450—30—600—35—670—EB—35—950.

(c) Assistant Development Officers with 5 years service in the grade are eligible for promotion to the post of Development Officer in the Directorate General of Technical Development in the scale of pay of Rs. 700—40—1,100—50/2—1,150—EB—1,300—60—1,600. 50% of the posts in the cadre of Development Officer is filled by promotion. Development Officers (Rs. 1,800—2,000); Industrial Advisers are eligible for promotion to the post of Deputy Director General (Rs. 2,500—125/2—2,750) and Deputy Director General in turn are also eligible for promotion to the post of Director General (Technical Development) Rs. 3,000.

(d) Any person appointed on the result of this competitive examination shall, if so required, be liable to serve in any Defence Service or post connected with the Defence of India for a period of not less than 4 years including the period spent on training, if any;

Provided that such person—

(i) shall not be required to serve as aforesaid after the expiry of ten years from the date of such appointment;

(ii) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.

10. Post of Deputy Armament Supply Officer, Grade I, (Class I) in the Indian Navy.

(a) The selected candidates will be appointed on probation for a period of two years.

(b) The scale of pay attached to the post is Rs. 400—400—450—30—600—35—670—EB—35—950.

NOTE.—The pay of the Government servant who held a permanent post other than a tenure post in a substantive capacity immediately prior to his appointment as a probationer may be regulated subject to the provision of F.R. 22B(I), and the corresponding article in CSR applicable to probationers in the Indian Navy.

11. Posts in the Geological Survey of India—

Persons recruited to the posts of Assistant Drilling Engineer/Mechanical Engineer (Junior) (Class I Posts) and Assistant Mechanical Engineer (Class II posts) in the Geological Survey of India in a temporary capacity will be on probation for a period of two years. Retention in service for a further period over two years will depend on assessment of their work during the period of probation. This period may be extended at the discretion of the Government. They will receive pay in the time scale of Rs. 400—400—450—30—600—35—670—EB—35—950 and Rs. 350—25—500—30—590—EB—30—800, respectively. On completion of their period of probation satisfactorily, if they are considered fit for permanent appointment they will be considered for confirmation according to rules subject to the availability of substantive vacancies.

The persons appointed to the posts of Assistant Drilling Engineer/Mechanical Engineer (Junior) and Assistant Mechanical Engineer in the Geological Survey of India, if so required will be liable to serve in any Defence Service or post connected with the Defence of India for a period of not less than four years including the period of training, if any.

Provided that such a person—

- (i) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment as Assistant Drilling Engineer/Mechanical Engineer (Junior) or Assistant Mechanical Engineer, Geological Survey of India, and
- (ii) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.

The following is the field of promotion open to those found fit according to the rules and instructions on the subject :—

A—For Assistant Drilling Engineer (Class I)

- (i) Deputy Drilling Engineer—Rs. 700—40—1,100— $50/2$ —1,250.
- (ii) Drilling Engineer—Rs. 1,300—60—1,600.
- (iii) Additional Chief Drilling Engineer—Rs. 1,600—100—1,800.
- (iv) Chief Drilling Engineer—Rs.—1,600—100—2,000.

B—For Mechanical Engineer (Junior) Class I.

Assistant Mechanical Engineer (Class II)

- (i) Mechanical Engineer (Junior)—Rs.—400—400—450—30—600—35—670—EB—35—950.
- (ii) Mechanical Engineer (Senior)—Rs.—700—40—1,100— $50/2$ —1,250.
- (iii) Superintending Mechanical Engineer—Rs. 1,300—60—1,600.
- (iv) Chief Mechanical Engineer—Rs. 1600—1800.

The Officers recruited in the Geological Survey of India will be required to serve anywhere in India or outside the country.

NOTE.—The pay of a Government servant who held a permanent post other than a tenure post in a substantive capacity prior to his appointment as a probationer will be regulated subject to the provision of F.R. 22-B(I).

12. Posts of Assistant Manager (Factories), Class I in the P&T Telecom Factories Organisation.

(i) Persons recruited to the post of Assistant Manager (Factories) shall be on probation for a period of two years.

(ii) During the period of probation, the candidates shall be required to undergo practical training in accordance with the programme of training that may be prescribed by the Central Government from time to time and are required to pass a professional examination and a test in Hindi.

(iii) Any person appointed to the post of Assistant Manager (Factories) shall, if so required, be liable to serve in any Defence Service or post connected with the Defence of India for a period not less than four years including the period spent on training, if any;

Provided that such person—

- (a) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment.
- (b) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.

The scales of pay for engineering posts in the P&T Telecom Factories Organisation are as follows :—

- 1. Assistant Engineer (Factories)—Rs. 350—25—500—30—590—EB—30—800—EB—30—830—35—900.
- 2. Assistant Manager (Factories)—Rs. 400—400—450—30—600—35—670—EB—35—950.
- 3. Assistant General Manager/Senior Engineer—Rs. 700—40—1,100— $50/2$ —1,250.
- 4. Deputy General Manager/Manager of Telecom Factories—Rs. 1,300—60—1,600.

13. Telegraph Traffic Service, Class II :—

(a) Candidates recruited to Telegraph Traffic Service, Class II will be appointed as probationers for a period of two years during which they will undergo practical training, in accordance with the programme of training that may be prescribed from time to time. Those, who are favourably reported upon at the end of two years and have passed any departmental examination or examinations that may be prescribed will be appointed to working posts in the Telegraph Traffic Service Class II.

(b) If, in the opinion of the Director General, Posts and Telegraphs, the work or conduct of an officer on probation is unsatisfactory or shows that he is unlikely to become efficient, the Director General may discharge him forthwith.

(c) On the conclusion of his period of probation, the Director General may confirm the officer in his appointment or if his work or conduct has in the opinion of the Director General been unsatisfactory, the Director General may either discharge him from the service or may extend his period of probation for such further period as the Director General may think fit.

(d) If no action is taken by the Director General under (b) or (c) above, the period after the prescribed period of probation shall be treated as an engagement from month to month, terminable on either side, on the expiration of one calendar month's notice in writing.

(e) Probationers will also be required to pass a test in Hindi before confirmation.

(f) The following are the rates of pay admissible :—

(i) Telegraph Traffic Service Class II—Rs. 350—
25—500—30—590—EB—30—800—EB—30—
—830—35—900.

(ii) Telegraph Traffic Service Class I Grade II—
Rs. 700—40—1,100—50/2—1,250.
Grade I—Rs. 1,100—50—1,400.

(iii) Controller of Telegraph Traffic, P&T Board—
Rs. 1,300—60—1,600.

14. Other permanent/temporary posts carrying generally the following Scales of pay :—

	Rs.
(i) ..	400—950
(ii) ..	350—900

Any person appointed on the results of this competitive examination shall, if so required, be liable to serve in any Defence Service or post-connected with the Defence of India, for a period of not less than four years including the period spent on training, if any;

Provided that such person—

(i) shall not be required to serve as aforesaid after the expiry of ten years from the date of appointment.

(ii) shall not ordinarily be required to serve as aforesaid after attaining the age of forty years.

MINISTRY OF IRRIGATION & POWER

New Delhi, the 29th December, 1973

RESOLUTION

No. EL.II-1(3)/72.—In partial modification of this Ministry's Resolution No. EL.II-1(3)/72, dated the 20th September, 1972 as amended by Resolutions No. EL.II-1(3)/72 dated the 28th November, 1972 13th February, 1973, 10th August, 1973 and 24th September, 1973, it has been decided that the Committee set up therein will function henceforth under the Chairmanship of Shri Siddheshwar Prasad, Deputy Minister for Irrigation and Power, instead of Shri Balgovind Verma who has since demitted the charge of the office of the Deputy Minister in the Ministry of Irrigation and Power.

ORDER

ORDERED that copies of the Resolution be sent to all the State Governments, Union Territories and Electricity Boards for giving wide publicity.

Also ordered that the Resolution be published in the Gazette of India.

S. N. VINZE, Jt. Secy.